AMERICAN

JULY • 1955

Cinematographer

THE MAGAZINE OF MOTION PICTURE PRODUCTION

In This Issue . . .

• Artistic Honesty in Cinematography
• Newsfilm Tailored for Television
• Use of Miniatures in 16mm Films

25
FOREIGN

DAILY LIGHT TESTS are shown to Du Pont Technical Representative Jack DuVall by Director of Photography Bill Bradford. In center is Director George Archainbaud

GENE AUTRY'S FLYING-A RANCH is the locale for a scene from the "Buffalo Bill, Jr. Show." For outdoor shooting under a wide range of lighting conditions, Director of Photography Bill Bradford depends on Du Pont "Superior" 2

"'Superior' 2 has plenty of flexibility . . . helps us meet tight TV schedules,"

says **Bill Bradford, ASC,** *Director of Photography, Flying-A Productions*

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Cinematographer

THE MAGAZINE OF MOTION PICTURE PHOTOGRAPHY
PUBLICATION OF THE AMERICAN SOCIETY OF CINEMATOGRAPHERS

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ON THE COVER

OVER THE SIDE of the U.S.N. Attack Transport Randall goes director of photography William Daniels ASC, and his camera crew to film scenes of amphibious landing for Universal-International's VistaVision-Technicolor production, "Away All Boats." Daniels wears tent shaped sun helmet because of severe sunburn suffered first day of shooting on Virgin Islands location.

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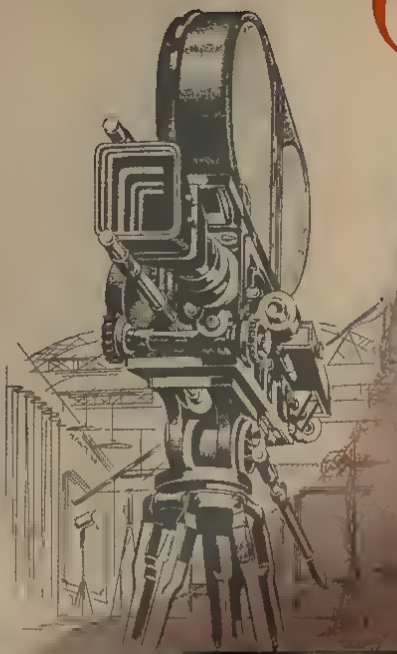

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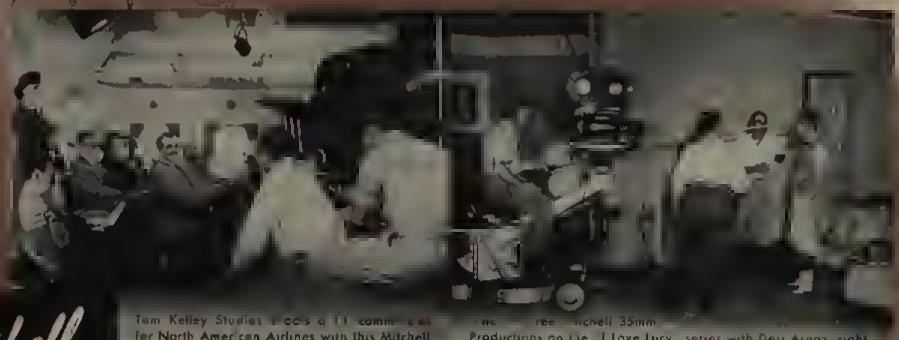

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Tom Kelley Studios [illegible] of 11 comm[illegible] [illegible] ree Mitchell 35mm [illegible] for North American Airlines with this Mitchell 35 [illegible] NC. Ceasar Romero is shown at center [illegible] Productions on the "I Love Lucy" series with Desi Arnaz right and Lucille Ball

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INDUSTRY NEWS

Cinematographers attending meeting of the International Organization for Standardization in Stockholm last month, voted in 14 proposals which will further international exchange of films products.

More than 10 delegates from the U.S., Britain, Germany, France, Belgium, Russia, Czechoslovakia, Italy and Sweden attended the last session of a five-day meeting on cinematography.

A U. S. proposal for the cutting and perforating of 35mm film for use in CinemaScope was adopted. Safety film definition and methods of testing were also agreed upon by delegates. An international procedure for making safety films was launched after a three day study of methods used by the various countries. A committee was authorized to draft an international standard on multilingual tracks to cover one present optical and two magnetic tracks on a single standard release.

★

Consolidated Film Industries, last month completed installation in its Hollywood plant of the new 16mm Reeves Soundcraft Magna-Striper. Equipment will enable Consolidated to offer its customers magnetic oxide striping of motion picture films in widths of 25 mils, 50 mils, and 100 mils. Striping may be applied to either black-and-white or color films.

★

Motion picture film now accounts for approximately 55 to 65 per cent of television presentation "air time" and is expected to increase materially in the next few years, T. Gentry Veal, research associate at Kodak Research Laboratories, reported at a recent meeting of the National Association of Television Film Directors in Washington, D. C.

The Kodak scientist said that the goal of better definition and overall picture quality from movies on TV has recently been a subject for considerable development and research among television engineers and film manufacturers.

The best set lighting for color motion pictures for TV was also discussed. Veal showed color slides to illustrate how research had established the need for limiting the luminance range on movie film for TV use. This was done through proper subject-lighting contrast, he said, and a lighting contrast known among cinematographers as "2 to 1" was judged the most suitable for reproduction by color television.

Magnasync Mfg. Co., Ltd., North Hollywood, Calif., has developed a new electronic system whereby blueprint dimensions are recorded directly on a roll of 35mm magnetic film. When this film is "played back," in much the same manner as on a home tape recorder, it directs mills and lathes in a machine shop to make parts exactly as blueprinted.

O. L. DUPY

Aiding in the development of this equipment was Olin L. Dupy, veteran sound engineer and who was supervisor of sound recording at M-G-M Studios for a quarter of a century.

For the motion picture industry, Magnasync makes synchronous magnetic tape and film recorders and associated equipment.

★

The first production of feature films in Western Canada will get under way this fall in new studios being built by Parry Films Ltd., in Vancouver. The company's new $50,000 building will enable it to expand from its present production of industrial and commercial films, to films for the theatrical field. Head of company is Lew M. Parry.

★

CinemaScope and other wide-screen processes have made the job of the art director more important than ever before, according to Arthur Freed, MGM director.

★

Color television test films and slides in 35mm and 16mm are now available from the Society of Motion Picture and TV Engineers. Prints, produced for use by television engineers and technicians, represent quality of color material obtainable from Technicolor, Ansco or Eastman prints.

★

A variable anamorphic auxiliary lens attachment for 16mm projectors is now being marketed by Panavision, Inc., Los Angeles. Trade-named the Panatar-16, attachment is said to produce the same high quality of Panavision's 35mm Super and Ultra Panatar lenses, which are now in use in more than 5,000 theaters. Hollywood laboratories also employ the new lens to check quality of 16mm release prints reduced from 35mm CinemaScope to 16mm CinemaScope.

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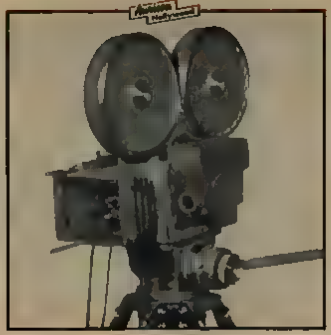

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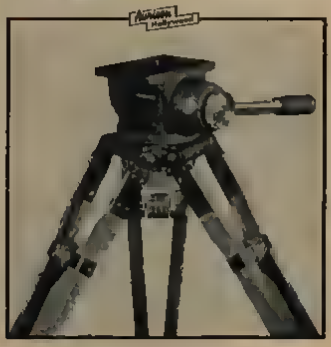

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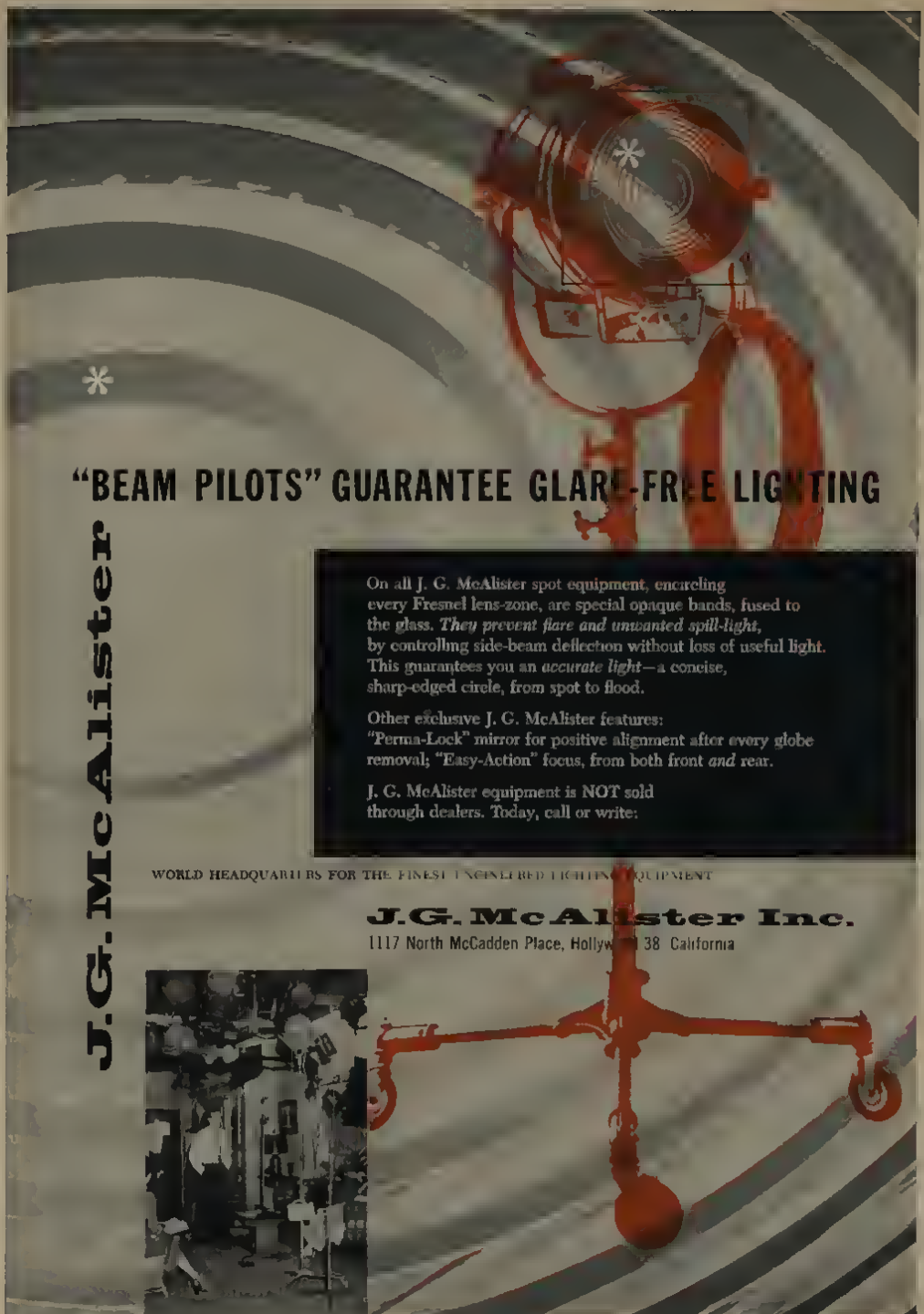

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Hollywood Bulletin Board

CAMERAVISION'S new, dual-purpose video-film camera was put on display for members of the American Society of Cinematographers at their July meeting in Hollywood. Handling question-and-answer period are CameraVision's Norton Locke, right, and Glenn Robinson of Aremac Associates. New camera was described in detail in June Amer. Cinematographer.

William Daniels, ASC, is one of the first directors of photography to use the new "yellow flame" carbons for color photography, employing them for lighting ship board sets and "indoor exteriors" for Universal-International's "Away All Boats."

★

Sam Leavitt, ASC, returned to the Warner Brothers' lot last month to direct the photography of "The Court Martial of Billy Mitchell." Assignment also brings Leavitt and director Otto Preminger together again: the two were together previously on "Carmen Jones." Picture is being produced in CinemaScope and Warner Color.

★

Bud Mautino, camera operator, is one of the few ever to receive screen credit. His name appears in the credits of Stanley Kramer's "Not As A Stranger." Well-deserved, too.

★

Jim Van Trees, ASC, is back in action in the TV film field. Following his stint of finishing out the ailing Phil Tannura's assignment of directing the photography of the Burns and Allen Show for McCadden Productions, he travelled to Pittsburgh, California, to photograph a sequence at a steel plant there for a forthcoming U. S. Steel Hour television show.

The George Eastman House, in Rochester, N. Y., plans a film festival for the fall during which awards and citations will be presented to film players, cameramen and directors still living who have made significant contributions to the history of American motion pictures during the period 1915 to 1925.

Jesse L. Lasky, Hollywood, was appointed to the Festival committee; he in turn solicited the American Society of Cinematographers to appoint one of its members to represent industry cameramen. The ASC Board chose Jackson J. Rose. Veteran Rose is well-qualified to serve the post, having been a cameraman with Essanay from 1910 to 1919 before coming to Hollywood.

★

Benj. Kline, ASC, veteran director of photography of the Fireside Theatre TV film series, is one of the founding group and the director of photography of the newly-formed Don Wilson Productions, Inc., which opened offices in KTTV Studios in Hollywood last month. New company will specialize in the production of TV spots, slide films, and industrial, documentary and sales films.

★

"The Spirit of St. Louis," Warner Brother's production based on the famed Lindbergh trans-Atlantic flight, will "get off the ground" July 20th with Ted Mc-

(Continued on Page 438)

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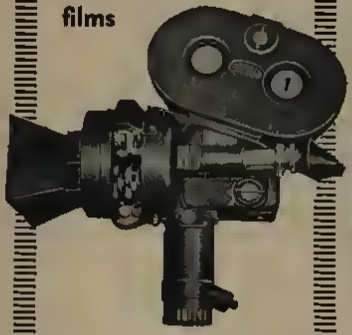

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Film is transported by friction-clutch drive. Operating speed is variable between 10 and 35 feet per minute. Developer and fixer tanks have temperature control. Recirculation is provided for the developer. All tanks are equipped with bottom drains. Manufacturer is Houston-Fearless Division, Color Corp of America, 11309 West Olympic Blvd., Los Angeles 64, Calif.

110-volt Powerpack

Carter Motor Co., 2644-A North Maplewood Ave., Chicago 47, Ill., announces its new Carter-Pak—a new self-contained rotary power supply that delivers 110-v of power for recorders, cameras, etc. Compact carrying case contains 12-v storage battery, Carter converter, and a battery charger that may be plugged into any AC outlet to replenish the battery when required. Control panel has frequency control knob, meter and switches.

Magnetic Film Recorder

Stancil-Hoffman Corp., 921 No. Highland Ave., Hollywood 38, Calif., announces a new line of professional magnetic film recording equipment. The new Model S6 system can be operated from normal AC power sources or batteries. The system was engineered around a 24-

volt battery power supply because of the availability of the newer, more efficient batteries now available.

The S6 is available for 16mm or 17½mm film. Descriptive literature is available.

Automatic Printer Fader

Bell & Howell Co., 7100 McCormick Road, Chicago 45, Ill., announces a simple easy-to-install automatic fader for installation on model D or J printers. User can install the fader without need of sending printer to the factory.

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Film Coding Machine

Hollywood Film Company, 956 No. Seward Street, Hollywood 38, Calif., offers a new coding machine for 16mm and 35mm film. Both models will code up to and including 3,000 ft. reels of film. A free-wheeling, precision-machined contact roller assures uniform application of the ink code marks without over-pressure embossing of numbers.

(Continued on Page 438)

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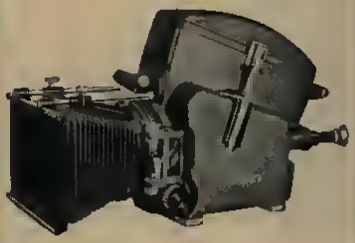

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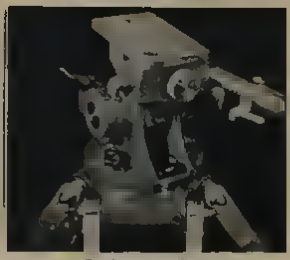

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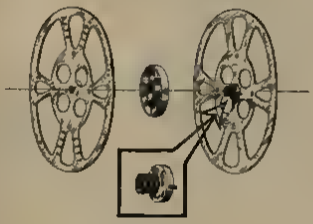

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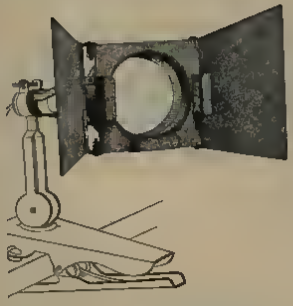

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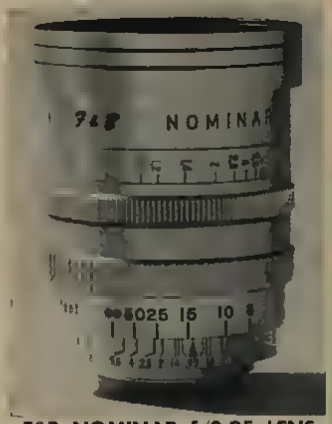

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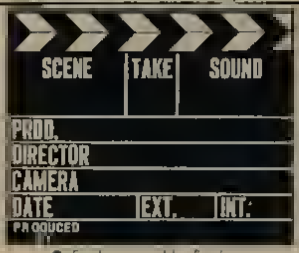

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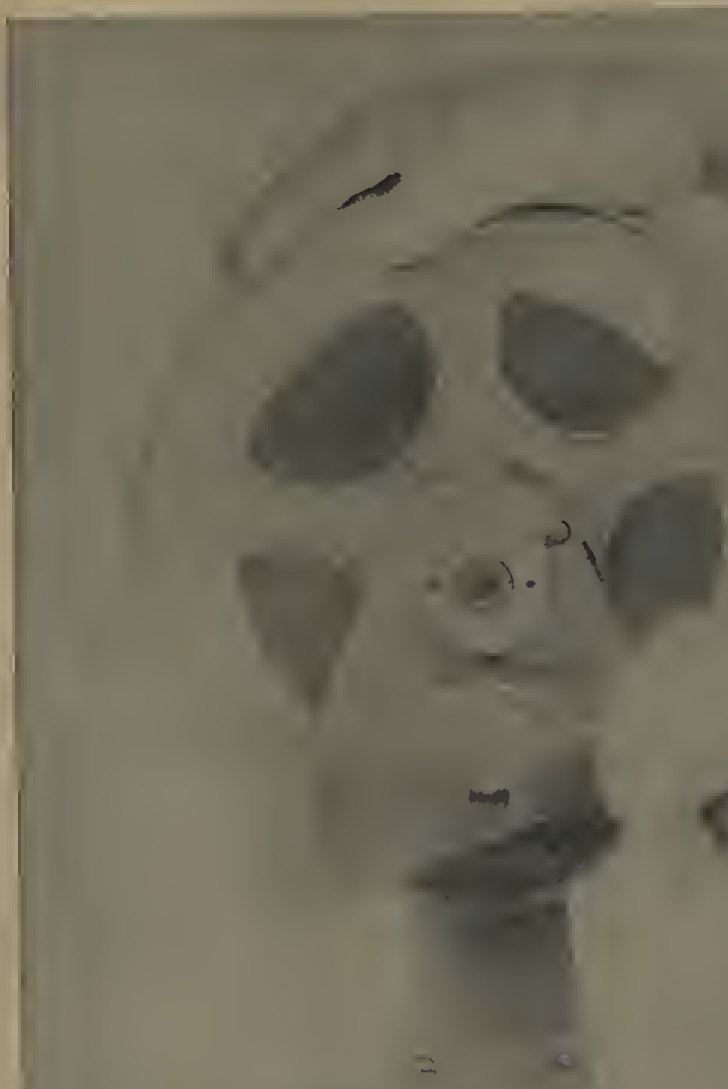

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in 10 SECONDS!

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Reflex Motion Picture Camera

The perfect camera for the motion picture film maker working in both 16mm or 35mm color or black and white.

LOOK AT THESE ADVANTAGES—

- The same lenses, same motor drives, same sound blimp and accessory equipment used for both 16mm or 35mm — to convert simply change the magazine.
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Old Time Movies Restored

Academy-financed project soon to be completed.

OLD-TIME MOVIES on rolls of paper, like so many adding machine tapes, today are providing Hollywood its first real link to the very beginnings of motion pictures.

The paper-film prints of early-day flickers have been resting—and deteriorating—in the vaults of the Library of Congress at Washington, D.C., ever since they were first filed there for purposes of copyright. Until 1912 that was the only legal way to copyright a movie—by filing a print of it on paper.

These "still photos" of pictures that moved are about two inches wide—it varies a little—and anywhere from three feet to three thousand feet long, and many of them are without sprocket holes, for it wasn't meant that they were to be projected. Fact is, most of them never had been projected. The first successful screen projector didn't come along until about 1905; before that movies could only be viewed in "peep show" fashion.

The paper positive prints—for that's what they are—were filed away in tight rolls which often shrank together into tight, misshapen masses on which the picture images were faded, if they could be discerned at all.

But they are invaluable, for they are all that remain of most early-day motion pictures. They represent the beginnings of movement in photography. All of the original negatives have become lost, and what later dupe negatives there were have long since crumbled to powder.

So it is from the treasure trove of paper "films" now that a whole new set of celluloid negatives is being made, through a joint project of the Academy of Motion Picture Arts and Sciences and of the Library of Congress, financed by the Academy.

The tedious copying job onto new negatives, frame by frame from the faded prints, is being done with equipment especially designed for the purpose, at a small laboratory in Hollywood known as Primrose Productions. Kemp Niver, manager of the studio was recently awarded an Academy "Oscar" for the accomplishments of his original Renovare process in doing the work. After two years of laborious effort, he and his small staff have duplicated 70,000 feet of film involving 334 titles. They have nearly 2,000,000 feet to go before they are done, involving several thousand titles, many of them not yet identified.

Niver devised his method after various laboratories and technicians had tried to reproduce the paper images with conventional film printing equipment and had found it impractical. Trained as a lawyer and formerly a private investigator, but wholly unschooled as a film technician, he solved the problem by applying the thinking and methods of an investigator until he found a way that did work. And then built a machine like none other with which to do it.

He has already re-created what is believed the first movie to be copyrighted in this country—a tiny piece of film entitled "The Sneeze," for the action it depicted. Dating back to 1889, and copyrighted in 1892, it consists of exactly 45 frames, original running time one second, but stretched now to 15. More impressive that way.

Niver has also turned up a priceless piece of film showing what may well have been the historic first flight of a hand-powered passenger-carrying airplane—but with assisted take-off—several years before the Wright Brothers' celebrated first-powered flight. He has duplicated a pirated but uncut version of Edison's memorable "The Great Train Robbery" of 1904, generally thought to be the first movie with plot, and he has turned up a two year previous picture, "The Life of an American Fireman," which had a plot, too.

One of the most exciting of his reproductions is the very first, circa 1898, production of Jules Verne's "Twenty Thousand Leagues Under the Sea," made in France by George Melies in collaboration with the author Verne himself. It runs seven minutes and its footage includes such supposedly much later technical tricks as lap dissolves, animation mixed with live action, underwater photography, pan and dolly shots.

Niver now is working on the restoration of a full-scale Passion Play movie which, filmed in 1897 on a New York building roof, was 2700 feet long and probably the first religious picture ever made. It had plot, too, of course.

To do all this, Niver and his staff first have to soak the paper rolls in a chemical bath and water, and then carefully unroll them a few inches at a time. In the case of early celluloid negatives from whatever sources, the film must first be painstakingly patched with clear plastic before any copy can be made.

And since the early silent films were photographed at different camera speeds

(Continued on Page 483)

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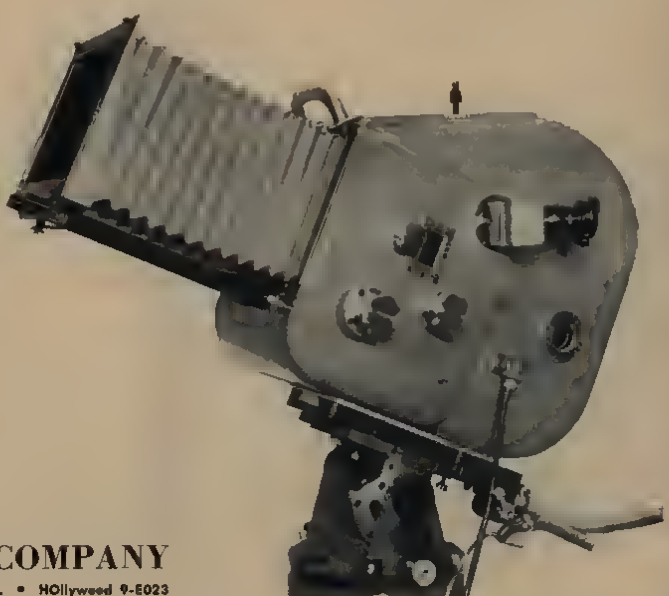

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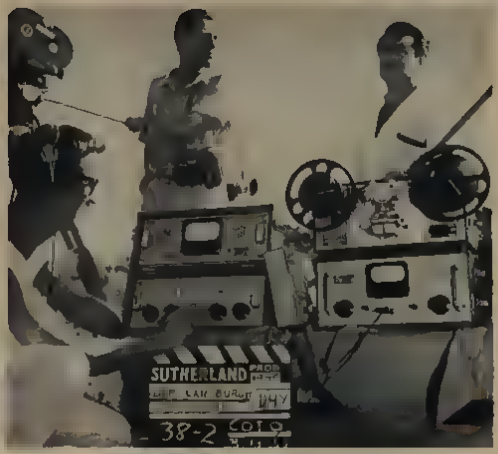

John Sutherland production "The Living Circle" produced in the jungles of Honduras. Sound was recorded with **Magnasync team**—X-400 recorder and G-924 mixer by Mexican technicians.

Director Larry Lansburgh, owner of the Magnasync equipment, is famous for his Academy Oscar nominee "Beauty and the Bull" and the Walt Disney production "The Littlest Outlaw."

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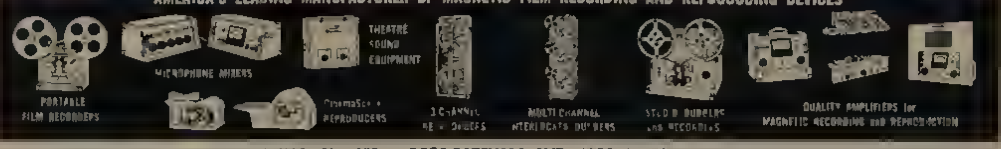

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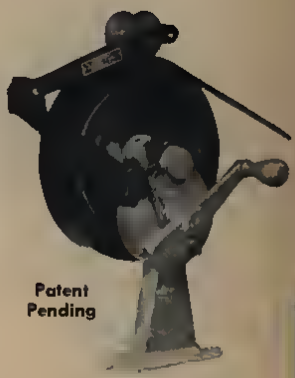

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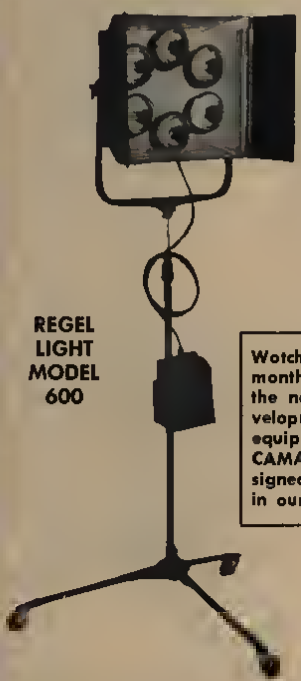

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IN SHOOTING the surgical sequences, the camera crew had to work around rigidly prescribed hospital routines and procedures. Cinematographer Frank Planer had to figure out ways of placing the camera to shoot the desired angle without getting in anyone's way.

MUCH OF THE surgical action was shot in a Los Angeles hospital. Because there was no place to hang large lighting units in the operating room, a serious lighting problem was created. The situation was saved by using Tri-X negative for most operating room scenes.

The Photography Of 'Not As A Stranger'

In these days of predominantly color production, Frank Planer's filming of this epic story creates a new respect for black-and-white photography.

By HERB A. LIGHTMAN

"NOT AS A STRANGER," produced and directed by Stanley Kramer, is an incisive behind-the-scenes study of the medical profession. Brilliantly photographed by Frank Planer, A.S.C., it represents one of the most demanding challenges ever offered a Hollywood director of photography.

The film, like the Morton Thompson novel from which it was adapted, is a mixture of fact and fiction. It's characters are fictional—although based, we may assume, upon real people. Its somewhat off-beat love story comprises the fictional plot structure necessary to the entertainment values of the film. But its analysis of the medical profession is of a strictly factual character. Medical techniques and surgical practice are portrayed with dedicated attention to authenticity of detail—a factor which, incidentally, imposed severe limitations upon the director and the cinematographer.

Ordinarily, Hollywood is permitted to take a certain amount of cinematic license with practically any subject. But the medical profession is held sacred against even the slightest exaggeration or distortion of the truth. For this reason there could be no variation in procedure to favor the camera. On the contrary, in shooting the surgical sequences the camera crew had to work around rigidly prescribed routines and procedures. If essential action became blocked by a nurse standing in a certain place the cinematographer could not request that the nurse deviate from her set pattern and move out of his way. Instead, he had to figure out some method of placing his camera and shooting the required angle without getting in anyone's way.

But the challenge ran deeper than that. As Planer explains it: "We were poking our camera into a strange world of white which is not for the average human eye to see. We had to be honest in our approach, while bearing in mind that the raw facts of medicine are, at times, too much for the average viewer to watch. Therefore, what we did not dare to actually show we had to suggest so strongly that the audience would be convinced they had seen it."

This observation is graphically illustrated in a sequence having to do with the dissection of a corpse. The cadaver is

only suggested by the indeterminate sheet-covered mass lying on the surgical table. As the camera pushes into a medium close shot of the operating surgeon the sheet is thrown aside a sharp incision is made the full length of the body and the vital organs are exposed. All of this is done just outside camera range of course, but the emphatic photographic approach coupled with the running commentary of the operating surgeon creates a perfect imaginative picture of the operation without offending the sensibilities of the audience.

From a technical standpoint the photography of the surgical sequences in the picture constituted a cameraman's nightmare. Much of the footage was actually shot in the operating room of the Veterans Hospital in Los Angeles. An exact duplicate of this operating room was constructed on the sound stage so that long shots and establishing angles could be photographed more easily.

The average operating room of a hospital is a somewhat less than ideal locale for photography. In this one there was room enough for the surgical team but scarcely any extra room for the film equipment and camera crew. This meant that Planer had to operate with a reduced crew. There were no suitable vantage points from which to hang lighting and there were no "wild" walls that could be knocked out to give the crew space to function. Moreover it was impossible to change the positions of personnel or equipment used in surgery, even though these presented serious obstacles to the photography of the action. To top it all off there was the fact that the average camera crew is not inured to the nauseating atmosphere of the operating room. As a result fainting film technicians constituted a very real problem.

Because there was no place to hang large lighting units in the operating room and because it is forbidden (due to the damaging heat involved) to shine raw light directly into an open incision, there was the serious problem of getting a sufficiently high light level to shoot the surgical sequences. The main source light actually came from the surgical lamp mounted above the operating table. Additional light for purposes of fill in was bounced off of reflectors. The resultant light level was so low that it proved necessary to use the new ultra-speed Eastman Tri X Pan negative for scenes actually shot in the operating room.

However, for the in scenes shot in the operating room replica constructed at the studio, Planer was unwilling to use so fast a film stock. The emulsion itself was brand new at the time and its control characteristics were not entirely familiar. Moreover, since an operating room is almost entirely white and since Tri X was developed for shooting low key subjects, it would have been very easy to overexpose the scenes. For these reasons Planer elected to shoot the studio scenes on Plus X negative. The resultant match between the scenes shot on these two widely different emulsions but intercut in the same sequence is so perfect that the variation, if any, in characteristic defies detection by even the most discerning technician.

The climactic sequence of "Not As A Stranger" portrays in great detail the technique of a heart operation. As an example of precise co-ordination of camera and action it is something of a masterpiece. Rather than break the sequence into a series of multiple cuts, director Kramer and cine

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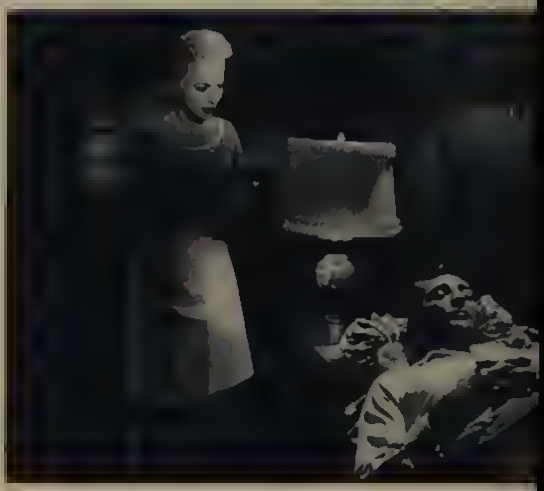


FEW PLANER pictures, perhaps, have demonstrated his uncommon flair for warm and realistic effect lighting as does "Not As a Stranger," which is aptly illustrated in the four scenes above. Note the realism he has achieved by the effect of light spilling onto the walls from table lamps and onto the players themselves from what logically appears to be the practical room lights overhead—out of camera range.

After The Last Shot Is Made

. . . a tremendous post-production staff takes over to complete the picture. Here, briefly, is what takes place in a major studio with a typical feature production.

By ALLAN BALTER
Editor ACTION Magazine, 20th Century-Fox Studio

POST-PRODUCTION recordings are channeled into the re-recording department, where the "grand finale" of post-production takes place. Here, 20th's Don Rogers threads a re-recording machine.

DUBBED DIALOGUE, once it's recorded, is carefully edited and fitted to each reel by highly skilled technicians like assistant sound editor Duane Hansel

ADDITION of sound effects such as "door slams," crowd noises," etc., is a vital post-production activity. These are added to sound tracks of 20th's CinemaScope films by sound effects editor Alfred Ross.

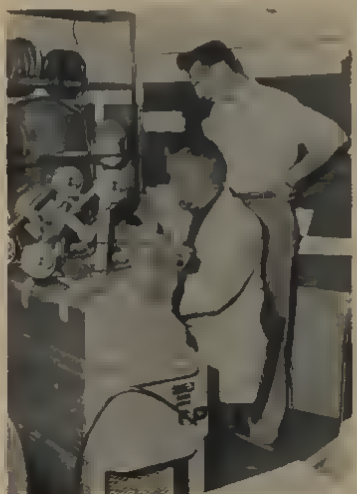
AFTER THE FINAL scene has been shot on a production, the tremendous aggregate of talent and know-how whose labors fall in the general classification of "post-production" takes over.

The twelve to fourteen weeks that elapse between the final "Print it!" and the day the picture is given its first preview is a sort of mysterious hodge podge of technical activity about which many who are outside the very top production offices of the studios know little. Invariably there are added scenes to shoot, and we know that music gets added somewhere along the line, but that's about as far as many of us go in post-production knowledge. Actually the amount of work and artistry that is crammed into that short fourteen weeks is nearly unbelievable.

Take, for example, the average feature production here on the 20th Century Fox lot.

The departments that are actively engaged in post-production activity take over immediately at the close of shooting. As a matter of fact, a small amount of what is actually post-production work goes on during the shooting. This would especially be true in case some dubbing or narration were needed and the actor involved had some time away from the set. By and large, however, the bulk of the work is done after photography closes. Though much of the work we are about to describe is done simultaneously, for purposes of clarity, we will deal with each step individually as we take our hypothetical film through the post-production steps.

Shooting finished, the film editing department under Jerry Webb, takes over. The first man to actually do post-production work on a film is the editor. As the picture is shooting he keeps everything cut and within a few days after photog



PRIOR to scoring a picture, each reel must be carefully timed and cued for the composer and the scoring staff—a task handled here by music editor George Adams and assistant Kenny Hunyan

raphy closes he puts together the "first cut" This finished it is run for the director who, with the editor, may make certain changes in construction along with effecting a general tightening of the picture This tightened version, incorporating the director's changes, is then run for the producer who may also make certain changes Then, given the producer's and director's stamp of approval, the print is run for Mr Zanuck who may also make changes, eliminate some things, rearrange continuity and possibly decide on some added scenes which are worked out with the director and the producer These added scenes are then scheduled as soon as possible so that they may be shot before the cast has scattered and the sets struck The finished added scenes are incorporated in the picture by the editor, along with all changes then the final cut is again run for Mr Zanuck, the producer and the director. Their final approval then sends the picture on to the next phase in the post-production cycle

From the print ok'd by Mr. Zanuck a dupe is made which is sent to the music department In the meantime, the composer assigned to the picture has been sitting in with Mr Zanuck and the producer and director during screenings of the picture so that he has a good idea of its actual construction and sequence arrangement. Alfred Newman and his music department run the dupe, which is studied by Newman and the composer and the music cutters The picture is run reel by reel and it is decided where, and how much, music is to be used

The music cutters then break down the picture, timing it out in careful detail, and the composer writes his music to these cues The music written, it is orchestrated by Ed Powell and the music is recorded to projection to fit the picture.

These recordings then go to the music cutters under Leon Birnbaum and they build the music tracks, synchonizing the music to the action. The impact and aristry that the music department contributes to a picture is almost immeasurable The only way one could possibly begin to understand what a picture would be without music is to run one that way, It's a shocking experience.

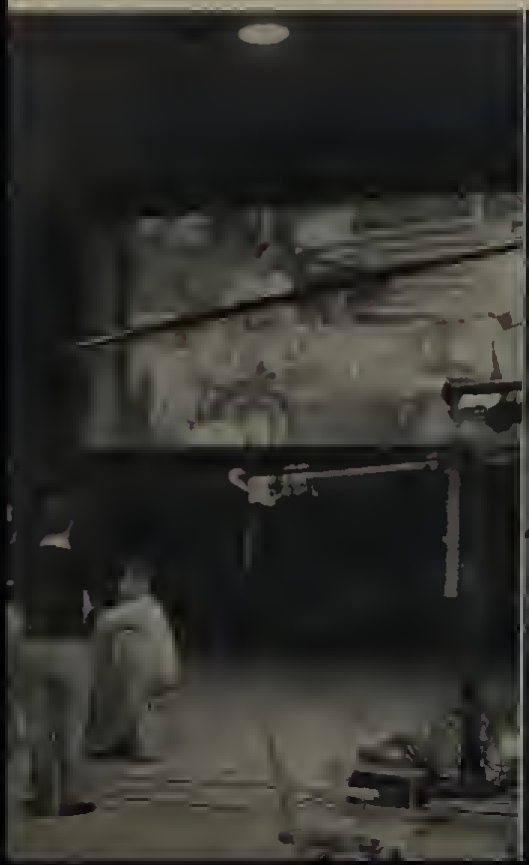
While the Music Department is working on scoring and building the music tracks the dubbing and sound effects editing department is at work building the effects tracks Though some of the dubbing is done during production, as we pointed out, the bulk of it takes place in the post-production period Dubbing is necessitated by a variety of circumstances Perhaps someone sneezed on the set at the wrong moment or an arc might have started to whine. On location a jet might swoop overhead To correct any of these or the thousand-and-one other little things that fall in the general classification of "extraneous noises," Walter Rossi and his crew dub the dialogue and cut and fit it to the track In addition to dubbing, any narration that might be required in a short or feature is done here to projection

One of the most monumental tasks

(Continued on Page 431)

AFTER scoring a sequence of scenes for "The Racers," 20th's music arranger Edward Powell (left), Lionel Newman, Alfred Newman, and composer Alex North (back to camera) watch screen and listen to playback of recorded score to check results

BIRD'S-EYE view of the entire 20th Century-Fox Studio symphony orchestra during a scoring session on the special recording stage Scenes which the music is to accompany are projected during scoring on the large screen at rear of stage



JACKSON J ROSE, ASC, holds copy of "unauthorized" Japanese translation of his American Cinematographer Handbook, taken from body of dead Japanese soldier during the war On table are copies of the eight editions of the Handbook which have been printed since its introduction in 1935 Over 100,000 copies have been sold

Origin Of The American Cinematographer Handbook

How "cuff-nates" made at random grew into an autharitative reference guide far cameramen that has sald aver 100,000 capies.

By JOHN FORBES

BECAUSE ONE CAMERAMAN in the early days of the film industry had a penchant for jotting down bits of technical information relating to his profession. thousands of motion picture photographers today have a ready reference guide that gives them answers to almost any problem encountered in cinematography

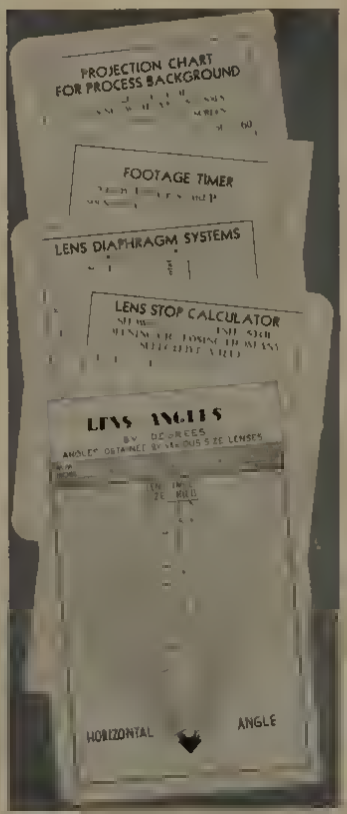
The cameraman is Jackson J Rose A.S.C., veteran director of photography and publisher of the American Cinematographer Handbook and Reference Guide Now in its eighth edition. there have been 20 separate printings in all The initial printing comprised 1000 copies To date, over 100.000 copies have been sold Buyers include cameramen and motion picture technicians in every country in the world

Rose began compiling his technical notes while he was a director of photography at the old Metro studio in Hollywood (before it was merged with Metro-Goldwyn Mayer). "Rose had slips of paper with penciled data in every pocket," recalls one old time associate In time the notes became so numerous they were hard to locate when they were needed for reference again. So Rose bought a small, pocket-size notebook from a dime store and laboriously transferred to it all the data he had gathered up until that time. Additional blank pages were provided and these received additional data notes during ensuing months.

This diligent data gatherer was not ahly free in passing his information on to hrother cameramen. Almost daily, those who knew of his pocket compendium of cinematographic facts often stopped him for a glance at the book to get the answer to some new problem encountered on their own photographic assignments Invariably they suggested that Rose have the data printed in handbook form and sell copies to other cameramen

Which is what Jack Rose did in 1935 twenty years ago this month. The original book said Rose, contained all the basic charts and tables in almost daily use by cameramen at that time Each chart and table was carefully drawn with pen and ink and a cut made for printing. Today. this information is

(Continued on Page 428)



The Handbook is chock full of data sheets and charts such as these that give ready answers to almost any cinematographic problem

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Artistic Honesty In Cinematography

You'll see it in the best photographed motion pictures. It's the key to successful professional cinematography.

By FREDERICK FOSTER

ARTISTIC HONESTY and factual fidelity are as important to convincing cinematography today as is the very camera lens itself. Recall for a moment any outstanding job of cinematography and you will invariably remember that it was the authentic lighting and a camera treatment with the bold stamp of meticulous pre-production planning that contributed most to its success—made it stick in your memory.

Before any cinematographer can express, through photography, a situation or subject convincingly, he must first be convinced of it himself; he must understand it; he must have had in his own past experience a knowledge and familiarity of the subject or situation in a measure comparable to that which he now wishes to express photographically. In every artistic endeavor this fact is recognized. Elsewhere in the motion picture industry, writers, directors and actors agree that the most convincing results follow where the thinking and efforts are based to a great extent upon the personal experience of the individual.

This, then, appears the keystone to truly successful cinematography. It will probably be argued that the cinematographer's task is more mechanical than artistic—demanding merely a photographic record of what others place before his lens. To a certain extent, of course, this is sometimes true; but if we will consider this fact—that, given the same scene to light and photograph, different cinematographers would each do it differently—it must be agreed that, despite all commercial considerations and any collectivized nature of film production, individual expression does play a vital part in motion picture photography.

Among the industry's directors of photography, this opinion is strongly supported by George Folsey, A.S.C., who last month completed the photography of Metro-Goldwyn-Mayer's science-fiction thriller, "Forbidden Planet."

"I firmly believe that our work can be entirely convincing only when we base it on substantial personal knowledge or experience, or memories of things comparable with those we seek to put on the screen," said Folsey. "In the case of 'Forbidden Planet,' extensive research and study of the subject gave me an insight that approached substantially what I might have gained had it been possible to have experienced life in the mythical world portrayed in the picture.

"It is quite improbable, of course, that every cinematographer will have experienced situations and emotions absolutely identical with those of every scene he is called on to photograph. But his general experience or knowledge should be such that the majority of scenes to come before his lens will find some common factor in his memory. Some factor, that is, which will suggest how such a scene should really appear to the eye—which will enable him to visualize the scene and give it complete pictorial honesty in the photographic treatment.

(Continued on Page 426)

AN EXAMPLE of artistic honesty in lighting of an indoor exterior set by director of photography Harry Stradling, A.S.C., for "A Streetcar Named Desire."

THIS SCENE from "From Here To Eternity" displayed exceptional realism in lighting and photography as did most of the scenes in this production for which Burnett Guffey, A.S.C., won an Academy Award.

THE THOROUGHLY realistic low-key lighting of scene below from "Asphalt Jungle" gave an authentic touch to the tense action that was played before the camera of Hal Rosson, A.S.C.

Universal-International Introduces New Camera And Location Truck

By ARTHUR ROWAN

U-I's "Combination Truck" provides a sturdy, compact, equipment carrier and a versatile camera support that makes filming in even the toughest locations comparatively easy. Designer is Virgil Summers, studio Prop Dept. head, shown here standing on hydraulic platform next to camera pedestal.

MAST of truck may be tilted forward or backward to provide a level platform for camera and crew, when truck is on an incline in hilly terrain.

A RUGGED COMPACT combination equipment transport and camera car that would enable a production company on location to move, in a single trip, the camera, lights and sound and grip equipment into the most rugged of location setups was the goal of Universal International Studio engineers when they built the "Combination Truck."

Designed by Virgil Summers, head of U-I's Grip Department and constructed under the supervision of engineers Cecil Barton and Ralph McClure, the Combination Truck is said to offer all the advantages of the famous "Blue Goose" camera car which preceded it and a lot more.

Because of its compact overall size, its rugged 4-wheel drive, and the facilities it provides for transporting all the chief essentials of production equipment, the Combination Car already has proved a big time and money saver in location shooting for such U-I productions as "Tarantula" and "Backlash."

The accompanying photos illustrate some of the features of the Combination Truck. In addition to its function as a camera car and equipment transport, it also serves as operation headquarters for the director, script girl and assistants during shooting—space being provided for deck chairs on the roof of the truck. A collapsible railing extends around the sides, and can be erected in a matter of seconds to give protection to those working on the roof.

Starting with a standard "cab forward" type short-coupled Ford truck U-I engineers added a Marmon-Herrington 4-wheel drive, the van with reinforced roof and collapsible railing, a hydraulic tailgate, and a hydraulic mast at the front with elevator platform. No less important is the hydraulic system which powers the mast, elevator and the tailgate. Hydraulic power is generated by the truck's motor, and there are two 5-gallon accumulator tanks beneath the truck which enable the system to function to a limited extent when the motor is not running. The pump cuts off automatically whenever the pressure reaches 1600 pounds.

The truck's salient feature, perhaps, is the accommodations provided for the camera and cameraman. This is the hydraulic mast and platform mounted on front of the truck. The mast, similar to that of the conventional fork-lift truck, is so mounted that it may be tilted forward or backward whenever the truck rests on an incline. In this way, the camera platform is made level. When platform is fully elevated, it affords a maximum height from ground level to camera lens of 19 feet 6 inches.

Mounted on the platform is an adjustable steel column or pedestal for the camera. Made of tubular steel 8 inches in diameter and machine ground, it is in four sections, each threaded to permit detaching the various sections whenever it is necessary to shorten the pedestal. The pedestal is not raised or lowered mechanically by the hydraulic system but manually, as stated above. When the camera platform is raised, the pedestal may be lowered through floor of the platform. When the platform is lowered to ground level, the pedestal is shortened by removing one or more of the sections.

On top of the camera pedestal is a

special self-leveling camera base, a twin disc arrangement with leveling screws positioned at points N.S.E. & W. Small spirit levels built into the base indicate when absolute level is attained.

Aiding also in the leveling operation are two hydraulic stabilizers which extend downward at an angle from top of the mast. These are pressure-driven against the ground as required to level the camera platform and at the same time provide the necessary stabilization for the mast and platform against side sway.

Overall stabilization of the Combination Truck is further assisted by lowering the hydraulic tailgate to the ground and exerting additional pressure until the truck's springs no longer function and the whole unit rests solidly, whether on an incline or on level terrain.

Hydraulic controls for the mast and platform are mounted in the front left fender, together with a pressure indicator dial. There are four levers which 1) raise or lower the platform, 2) tilt the mast forward or backward, 3) raise or lower the right jack; and 4) raise or lower the left jack. An automatic safety catch prevents accidental operation of any of the levers. Dual controls for the hydraulic tailgate are positioned at the rear of the truck, at either side.

Steel guard rails extend around four sides of the camera platform and are quickly demountable. There are fixtures at four different levels on each of the platform posts to take lamps, and additional lamps may be clamped to the handrails when necessary.

The van section just back of the truck cab has been ingeniously designed to serve a great many functions. Most of its spacious interior is given over to a portable Army type 225 ampere gas-powered generator. (When additional power is needed, another 600 ampere Mole-Richardson generator is mounted on the hydraulic tailgate.) The hydraulic mast and platform, when detached from front of the truck, is carried inside the van, also.

Lockers built into the van top or over the cab afford space for storing the sections necessary for erecting a 6-foot tubular steel parallel, 4 easel-type reflectors; 6 nesting camera boxes; two century stands and flags; and one umbrella. A storage compartment over the cab accommodates the sectional camera pedestal when not in use.

On the right-hand side is a cabinet that holds a magnetic film recorder. Immediately below is a battery power-pack which provides DC current to drive the camera motor and power the sound system. This consists of 10 twelve-volt storage batteries connected in series. The pack may be quickly lowered at night to afford access to the cells and to permit re-charging.

A quick-demountable bracket is provided that snaps into place on the instrument dash of the truck and which holds the mixing panel for the recording system. Next to the truck driver, the mixer thus has the most comfortable spot in which to work.

As we go to press, the Combination Truck is on location near Tucson, Arizona where the U-I color production "Backlash" is being photographed by director of photography, Irving Glassberg, ASC. It has more than lived up to expectations as a multi-purpose unit capable of taking camera, lights, recording system, and essential grip equipment into the most rugged of terrain—all at one time. At the same time it provides a sturdy and versatile camera mounting, eliminating the bother of setting up camera parallels, which is common on location shooting. END

NO LOCATION is too tough for the Combination Truck. Here it moves camera and crew into a rugged desert location in Arizona for U-I's "Backlash," filmed by Irving Glassberg, ASC.

COMBINATION TRUCK in use on location on the U-I production "Backlash," photographed by Irving Glassberg, ASC. Here sectional camera pedestal height has been reduced one half by detaching sections.

ABOVE PHOTO shows typical location for which the Combination Truck is ideally suited. Camera, lights, generator, and grip equipment are carried to the site all in one trip by the one vehicle.

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Newsfilm Tailored For Television

A carps of 250 tap-flight cinematagraphers supplies newsreel caverage of world-wide events for CBS' Newsfilm aperatians, which daily provides latest pictorial news for hundreds of the nations televisian statians.

By JAMES J KANE

Trade News Editor, CBS Television

NEWSFILM, a product of CBS News, is the only syndicated filmed news service tailored exclusively for individual television stations. Starting from scratch in 1953 as a separate unit of CBS News, this new newsgathering organization now starting its third year already has achieved recognition as "the best news film series" in non network television

A major part of the credit for this progress belongs to Newsfilm's 250 topflight staff and correspondent motion picture cameramen stationed throughout this country and in principle cities throughout the world Headed by vice president Sig Mickelson, Newsfilm's actual operations are managed by Howard L Kaney, who joined the organization at its inception following 20 years of varied news and pictorial experience with Associated Press in Washington, Chicago and New York

The syndication service offers daily fully scripted Newsfilm, which includes both sound on-film and silent film coverage of spot news, news features, news background stories and sports events from all parts of the globe Full facilities of the Newsfilm technical staff and worldwide camera crews are utilized to provide maximum coverage—no matter where the dateline.

Newsfilm is sold to television stations everywhere through CBS Television Film Sales, Inc. Production is dispatched speedily to stations direct from four processing centers in New York. Washington Los Angeles and Chicago, after preparation by a staff of more than 100 full-time writers, editors, technicians and traffic experts. Nearly all film is sent in unprocessed to Newsfilm production centers.

Among the cities where Newsfilm maintains fulltime camera crews are the four mentioned above as processing centers, and London, Paris Rome, Frankfurt and Tokyo Camera correspondents, always on call, are located in Berlin, Vienna Seoul, Beirut, Manila, Cairo and other important news centers throughout the United states, elsewhere in the Americas, in Europe and in Asia.

Newsfilm camera correspondents have been recruited with

NEWSFILM'S 250 topflight staff and correspondent motion picture cameramen stationed throughout this country and abroad produce the news footage for the only syndicated news service tailored exclusively for individual TV stations

great discrimination. Some are from newsreel ranks. Some are from Hollywood and other world film centers. Others have been taken off studio television cameras, and still others are former newspaper photographers. All were rated highly in their particular fields.

Regardless of their backgrounds, however, they are all put through an indoctrination or refresher course in television, and taught . . . 1) to shoot tight for television framing rather than wide for large screens, magazine or newspaper production . . . 2) to concentrate on closeups—facial expressions, hands, important details. They also are briefed on the importance of the exclusive or unusual, the human interest story for television rather than routine coverage of set events like parades, pageants and water-skiing—all favorite newsreel subjects.

But even beyond their reporting and picture-making skills, Newsfilm correspondents (and their cameras) must be capable of turning in top-caliber technical performances, whatever the assignment.

That's why correspondents are intensively trained and constantly supervised by Newsfilm's own technical department. That's why all of the equipment they use—cameras, types of film and sound gear—has been carefully tested, modified as necessary and then meticulously specified by CBS technicians.

And technical control continues long after footage is shot. Critiques go out regularly to camera correspondents for their instruction and improvement. Comprehensive picture and sound tests provide standards which guide not only the correspondents themselves, but manufacturers of Newsfilm equipment and Newsfilm laboratory technicians.

As an example of the sort of thing that goes on daily in the news film operation, the following story is cited. It gives some idea of the size of the staff, the alertness of the personnel and the tremendous scope of Newsfilm.

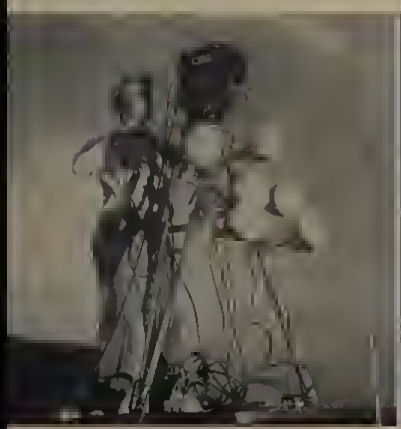
Recently, the news wires carried a bulletin from Texas telling that a severe storm was blowing and that high winds were kicking up dust in Colorado, New Mexico, Wyoming and sections of Texas and Oklahoma. The national assignment deskman on duty immediately placed a call to Newsfilm's camera correspondent in Amarillo, who reported the worst dust storm of the year sweeping through the Texas panhandle. He was instructed to start shooting immediately and to check back with the desk at the earliest opportunity.

Meanwhile, the deskman had put through a second call to a camera correspondent in Denver, to whom he outlined a roundup story covering all aspects of dust destruction. He was told to shoot with special care, to include closeup interviews with affected farmers, details of farms, animals, etc. and to point up the destruction talked about by the farmers.

The next step was to call a third correspondent. This one in Lincoln, Nebraska. He was instructed to do a wrap-up, sound and silent, of as much storm damage as he could reach in the Nebraska area.

Within two hours of this flurry of telephone calls, the

(Continued on Page 424)



LARRY RACIES, Newsfilm cameraman in action

AS TOMORROW'S coverage is being planned . . .

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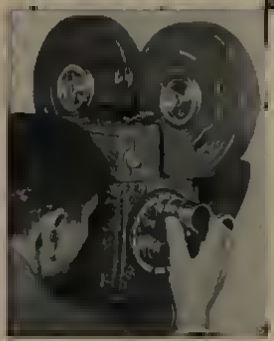

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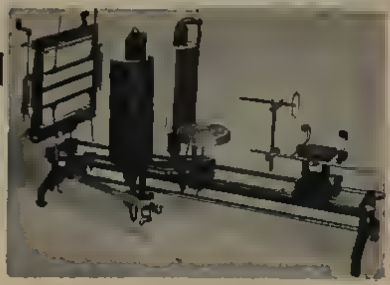

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SEE PAGE 391 FOR IMPORTANT ANNOUNCEMENT ON ANIMATION EQUIPMENT

The Use Of Miniatures In 16mm Films

Producers of industrial and television films can enhance production values and shortcut costs through use of miniature sets and models.

By CHARLES LORING

HOLLYWOOD studios save millions of dollars in production costs through the use of skillfully designed miniature sets and props. These are used where it is impractical or too costly to build a full-scale set, or where extensive destruction of a set is called for in the script, or where certain spectacular phenomena are indicated. Borrowing a page from Hollywood, the producer of television or industrial films also can make excellent use of miniatures to add vast scope and expensive appearing production value to films produced on a modest budget.

A successful miniature sequence begins with the construction of the model itself. There are on the market carefully detailed model trains, boats, airplanes, etc., that so closely duplicate their full scale counterparts that they can be used as miniatures with little or no adaptation. However, in some cases it is necessary to build models specifically to meet the requirement of a particular sequence.

Working from photographs or drawings of the "life size" set or prop a series of plans are drawn to the desired scale. In such cases, scale is largely a matter of personal preference, but it usually ranges from 3 inches/1 foot to 1 inch/1 foot. Generally speaking, the larger the scale of the miniature the easier it is to work with and the more convincing will be the illusion.

When the plans have been drawn the problem then arises as to who should actually build the miniatures. If the producer or cameraman or his associates are handy with this sort of thing, fine. If not, it may be necessary to call in a professional model maker. Actually, the best bet is to consult local hobby shops to find out who are the best local builders of model airplanes and ships. There are some very exacting craftsmen among these hobbists and many of them will be happy to build your miniatures to order for a reasonable fee. Whoever you select, however, be sure to allot him sufficient time, as the building of models is a very slow and exacting process.

Miniatures fall generally into two categories: those that are stationery, and those that entail movement. Stationery miniatures include such items as houses, castles, room interiors, landscapes, etc. Moving or animated miniatures include trains, boats, airplanes, autos, etc. It is extremely difficult to make convincing miniatures of animals or humans in action.

Stationery miniature sets are often used to establish locale, so that a dissolve can be made to a smaller "live" set representing a part of that locale. For example, where it is desired to establish the sequence locale with a shot of a miniature castle, one can then dissolve either to a full-scale interior of a room of the castle or to a section of the battlements on the exterior of the building. In any event, the illusion will be strengthened by moving the camera in slowly toward the miniature and also by moving in slowly toward the live scene, dissolving between. In this way the audience gets the realistic impression that they are moving in on a portion of the castle they have seen in the miniature long shot.

Miniature landscapes become necessary when a particular type of terrain is called for which does not actually exist where the film is being shot. For example, in shooting a film during the summer in, let us say, Kansas—and the script calls for a snow-capped mountain with a chalet on its summit and a particular type of trail leading up to it—the only alternative (outside of being

ON THE MARKET are accurate-scale toy automobiles, trains, trucks, airplanes, etc., which are ideal for miniature work. Here toy autos are used on miniature set by Motion Picture Unit of the Aetna Casualty & Surety Co. in producing film on automobile safety. Balance of set was built to same scale as cars. Note zoom lens on Cine-Special camera. Action of cars was filmed in stop-motion.

lucky enough to find just the right library shot) is to build the snow-capped mountain in miniature.

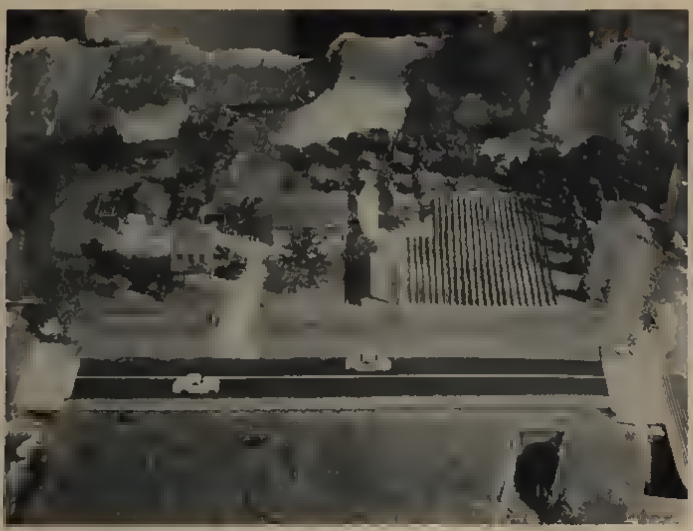
The first step is to construct a framework out of scrap lumber over which chicken wire is formed in the approximate general shape required. More detailed sections can be formed out of burlap which should be liberally brushed with a "sizing" material used in the construction of stage sets. Papier mache is then applied over the entire mountain framework, and then painted with set construction paint into which some common soil is mixed to give it texture. Miniature boulders and foliage can then be glued into place to add realism.

The snow-capped effect is achieved by painting the summit with flat white paint into which has been mixed some gypsum crystals or sparkle compound of the type used on Christmas trees. Realistic snow drifts can be formed out of white absorbent cotton over which gypsum or sparkle is sprinkled.

A roaring stream or waterfall can be created in miniature on a suitable piece of terrain cut by hand to the desired contour. It is important that no full size foliage be present in the foreground or close background, as this will destroy the illusion. A source of water with sufficient pressure to create the proper turbulence is an important requirement. The scene will, of course, have to be filmed at accelerated speed in order to slow the water movement down to a ponderous flow which would be faithful to the full size counterpart.

The matter of accelerated camera speed applies to almost all movement involving miniatures, especially wind effects, water effects, explosions, etc. Rarely should such scenes be photographed at less than 48 frames per second, and preferably at speeds ranging up to 128 f.p.s. The camera speed to use will vary with the specific situation, but when in doubt it is better to shoot the effect at several speeds (with multiple cameras, if necessary) and select the take that produces the best illusion.

COLORS USED in painting miniature houses and cars are checked against the scenic background for one of the sets for Asina's "Live and Let Live." Meticulous care with detail enhances illusion of reality in miniature sets.



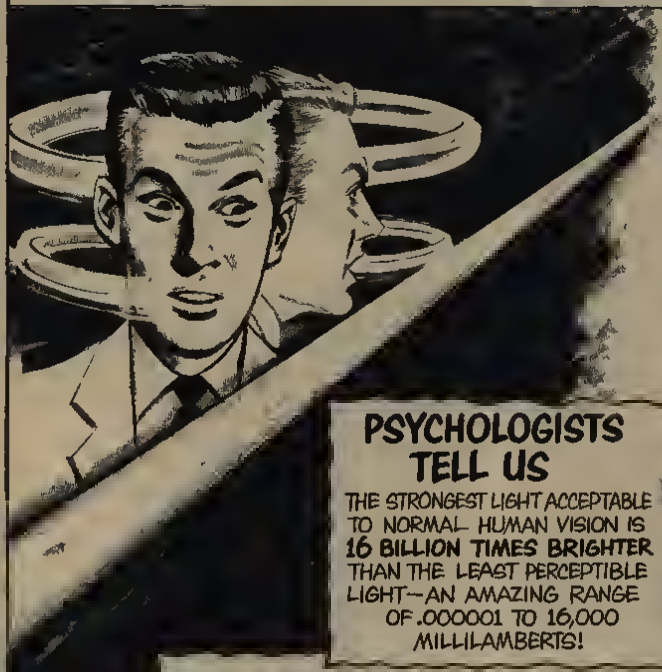
COUNTRY HIGHWAY for "Live and Let Live." While countless materials were used in construction of the set, the basic foundation began with a wood framework covered with chicken wire. Plaster of Paris is used to mold the terrain, sand and earth give real stic finish.

Very often it is possible to combine a partial miniature with a full-size setting to achieve a desired illusion. For example, say a large factory is to be used for the establishing exterior long-shot of a sequence. For script purposes it is necessary that the factory bear a certain fictitious name. But suppose it is impractical to put up full-scale signs or a large archway to thus identify the locale. The effect can be achieved by constructing a miniature archway or gate with the fictitious name inscribed on it. The archway is then set up in front of the factory, sufficiently far away, so that the full scope of the layout will show. The most realistic effect will be achieved by shooting the scene with a wide angle lens, with the camera at ground level. Very often miniatures of this type can be set up in such a way as to block out any existing signs or landmarks that would reveal the true identity of the locale. It is basically a matter of juxtaposing the miniature correctly in relation to the full-scale set.

This same principle applies to almost any type of miniature desired. Miniature buildings can be set up against a background of real buildings. A miniature ship can be floated in a small tank placed against a background of real ships floating at anchor in a harbor. A miniature military tank can be made

(Continued on Page 435)

SEEING IS BELIEVING!



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A Parallax-correcting Viewfinder For 16mm Cameras

The need for precise parallax-correction in filming closeups of wildlife resulted in this unique automatic device.

By L F FACHMAN

SHOWN HERE is author's automatic parallax-correcting viewfinder mounted on his Bolex 16mm camera. The same device is adaptable to other 16mm cameras.

ONE OF THE difficulties I encountered early in making 16mm motion pictures was the problem of parallax. A professional still photographer for more than forty years, I turned to the 16mm camera as a means of recording the subjects of my hobby—wildlife. Naturally this involved the use of telephoto lenses for closeups, where parallax correction is critical.

After giving some thought to the problem, I devised a method which involved using a lens-projected image in the finder tube, and a means for automatically adjusting the convergence of the finder tube as the lens of my Bolex H-16 camera was focused. By fastening a roughly designed cam on the focusing ring of the finder lens, I discovered that this would cause the lens to move toward or away from the camera according to the particular distance I was focusing. Through trial and error, I finally arrived at the correct shape the cam must be in order to produce absolute correction for all distances.

This arrangement worked fine until I got to "dreaming" again: Why not replace this cam, I reasoned, with one having gear teeth and operate it by a shaft from the back of the camera? This, I did—and it worked fine. The next step was to put gears on the focusing rings of all my camera lenses, and a corresponding gear of the proper size on the aforementioned shaft, this enabled me to focus the camera lens and the finder lens simultaneously and in sync, when operating the shaft of the finder from behind the camera.

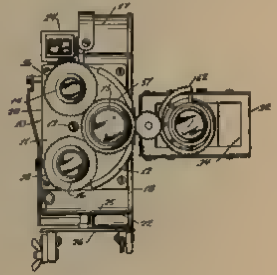
The arrangement enabled me to greatly improve my wildlife pictures. Now all I had to do was set the camera lens for the prevailing light, sit comfortably in my blind, and focus the finder lens on the bird or animal that was my subject.

For the finder, I found that the most practical lens to use was a 3-inch, wide open, which is sufficiently sensitive to varying distances and is not so great in focal length as to make the finder too large for what I wanted it to do. My aim was to have the finder show the exact field of lenses ranging from 25mm to 6-inch focal length. The whole idea worked so well that I thought it worth patenting, for which I have received patent No. 2,640,777.

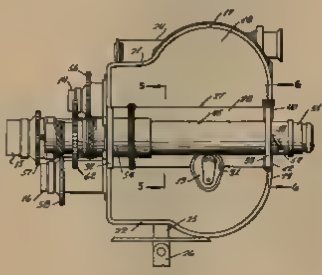
Following is a brief description of the components of the finder and some remarks on its manner of operation. The reference numbers refer to similar numbers which identify certain features or parts in the three patent drawings which are reproduced below.

The viewfinder attachment, which is adaptable to other cameras besides the

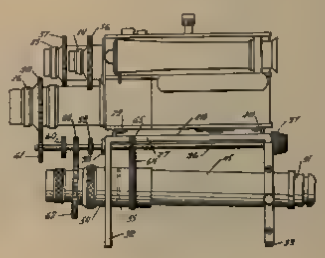
(Continued on Page 428)



FRONT VIEW, shewing cam and gear arrangement.



SIDE VIEW, shewing relative position of finder.



TOP VIEW, shewing arrangement of focus-gears.

GOOD EDITING, as well as good photography, depends a great deal on a carefully detailed script. The latter insures that there will be adequate shots to form a cohesive continuity when it comes time to put the film together at the editing board.

Why A Shooting Script?

The preparatory work is the most creative and thus the most exciting part of film making.

By HAROLD BENSON

AFTER THE NOVICE cine filmer acquires his first camera, he usually shoots a number of rolls of film before he comes to realize how a little careful planning in advance can make all the difference between a mundane collection of unrelated shots and orderly, logical sequences with pep and point.

This realization is the turning point for most amateurs. Quite a number, unfortunately, never even get this far, and all too many stop at the note-making stage. "I don't need a shooting script — I *know* what I want to shoot," is the usual cry. Perhaps it's true. But the most experienced professional would never think of attempting to carry the details of a single sequence in his head, let alone a complete film.

One curious belief of the "no scripters" is that a script restricts a film maker's freedom. They argue that there's no scope left for those last-minute ideas that come just as you're about to press the button. The truth is that the more details there are in a shooting script, the greater is the amount of freedom that can actually be enjoyed.

Look at it this way. A mere note on the action of a shot will mean that the director's attention is mainly occupied by routine problems, especially if he is a lone worker. But a script that shows a thumb-nail sketch of the scene to be covered and gives such details as the approximate footage required, camera movements, angles, optical effects and continuity dangers leaves the film maker free to examine the opportunities offered by the circumstances of the moment.

He knows the mechanical routine is already down in black and white, and a simple check against each item will insure that none of these essentials are overlooked. But meanwhile he can forget them, and concentrate on exploring the possibilities offered by his location and cast.

The best scriptwriters are those who have developed their visualizing powers to the utmost. When they think up a plot, they see sequence after sequence projected on a kind of mental screen. There is none of the plodding shot-by-shot labor that so exhausts the novice. By the time the final shooting script stage has been reached, they can visualize every shot so clearly that they have only to note down the details.

All the grinding agonies of the beginner's usual technique of lumbering from one shot to the next can be avoided if you learn to think cinematically, a sequence at a time. It's not as tricky as it may sound. After all, we think and dream in moving pictures. Cuts, dissolves, tracks, pans, closeups and long shots are familiar enough in our thoughts.

It doesn't need much practice to make these pictorial day-dreams coincide pretty closely with shooting script requirements. For a start, think of a single situation, and then give your imagination complete freedom. You'll be surprised how cinematic the result is. Think of, say, a train wreck, and you'll probably find you "see" a long shot of the whole scene at once, followed by detailed medium shots and closeups. This is just the way in which you would expect to find the subject treated on the screen.

Try the same technique with a series of actions, and you'll discover the result is similar. Imagine that you're considering Junior throwing a ball about in a field, losing it in the long grass, searching for it and eventually giving up. Several scenes will spring to mind at once. Note or sketch them immediately, or they'll disappear while you're thinking about the footage between them.

I can only work on this situation from the images that occur to me, of course. What follows is merely a personal approach, but it may help you to get your own ideas down on paper. I'm not suggesting for a moment that this would be the only way or even the best way to tackle this incident. It's simply an example of translating immediate ideas into shots, working on the gaps and polishing up the whole thing into a script that will give all the facts necessary to a lone worker who wants to devote his attention to making the most of his circumstances.

(Continued on Page 430)

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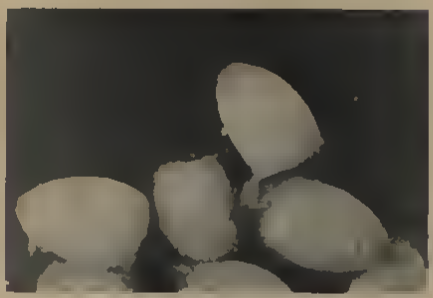

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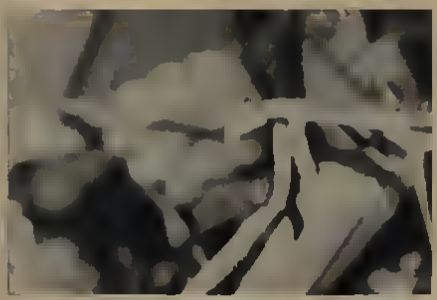

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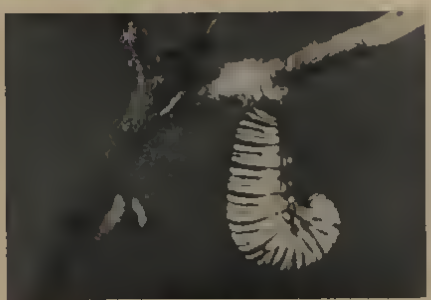

4

REPRODUCED above are frame enlargements from recent 16mm color films of insect life produced by the author. At top (1) is butterfly and mantid, (2) eggs of butterfly highly magnified; (3) head of mantid, and (4) monarch butterfly caterpillar ready to pupate.

BUGS IN HIS LENSES!

It isn't enough to make spectacular shots of an insect close up; the real challenge is to plan and execute movies of its entire life cycle, says this entomologist photographer.

By NORMAN E. FLITTERS

I HAVE PHOTOGRAPHED in 16mm the complete life cycle of a great many insects. Where much of this sort of filming by both amateurs and professionals has embraced only certain phases of insect life or growth, my endeavors resulted in faithful records of the full and unbroken life cycle of such subjects.

Insects are endowed with a positive affinity for doing the most unpredictable things at the most exasperating times. I recall such an instance occurring during the filming of the life history of the Black Witch" *(Erebus odora)* one of the largest of nocturnal moths. This particular larval specimen had been carefully nurtured from egg to final caterpillar stage, and all indications from size through color change to peristaltic motion indicated that the larva was ready to pupate.

The camera, a Bolex "16" with a 4" telephoto lens was mounted on an optical stage with two 3200-K lights mounted in reflectors. The moth was lying reposed in an earth cell just below the surface of the soil, which was contained in a metal pan. An all-night vigil resulted in negative results, as did the following hours of daylight, so, from sundown on through the succeeding night another careful watch was again undertaken. Around the "witching hour" the activity of the caterpillar indicated that final pupation was about to take place. The lights were turned on and the camera started and, sure enough, the insect began to cooperate.

Slowly the caterpillar began to shed its old skin with all the characteristic motions that, to the uninitiated, are spell binding. At last it looked as though all was success, but alas, for some unknown reason, my subject suddenly lost interest in the performance of its role and lay quiescent in the earth. Lights were dimmed, the camera stopped, the insect's name taken in vain, and the cameraman disgustedly reclined in a chair. Every few minutes the scene was viewed, each time no action. Then slowly sleep began to catch up with the production man and after about 15 minutes of napping a scramble was made for the lights. There lay a perfectly formed pupa serenely coloring in its new skin, oblivious of the fact that it had ruined two nights' sleep, yards of valuable film, and left the cameraman with unsupported evidence for the story he had to tell his wife of sitting up two whole nights with a moth.

While it is discouraging to work with the tender, unpredictable and immature stages of insect and animal life, it offers much in compensation, for who can help but marvel at the hatching of an egg less than 2mm in size to be followed by the larval development, pupal formation, and then

(Continued on Page 420)

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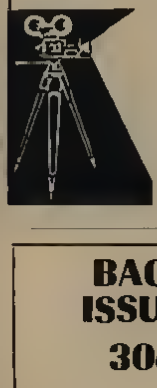

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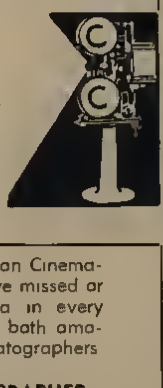

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BUGS IN HIS LENSES!

(Continued from Page 418)

the dramatic climax of insect development when a gaily colored moth makes its triumphant entry into the world!

I am sure that at times my family think that they have a real honest-to-goodness screwball at the head of the household, for on occasions caterpillars, frogs, snakes and all kinds of little denizens of field and garden appear slowly emerging from my pockets or out of my clothes closet

But all of this has its compensations when finally these little-known marvels of nature are revealed in their own inimitable screen story with all the color and pageantry of a colossal Hollywood production The question most frequently asked of me is, "How do you know where to look for the particular insect and how do you recognize it?" Both mute questions, but each with a simple answer. Being an entomologist by profession and a cinematographer by avocation, the subjects present no problem. However, I feel that any ardent, conscientious amateur imbued with the blessing of patience and a gift of keen observation can find enough material in his own backyard to produce a feature-length motion picture on nature subjects

Step outside to your garden for a moment and look around Yes, the grass needs cutting, but look at those grasshoppers cavorting in it Catch a couple, put them into a glass jar with perforated top and provide them with a few tablespoons of soil Watch closely and patiently, and see if one of them tries soon to sit in the soil, if so, it will probably be a female Leave her undisturbed, but later, upon her departure, examine the soil for eggs that she may have deposited If such is discovered, so commences your film story, and each successive step of preimaginal development can be photographed with either extension tube or through the medium of a low powered microscope.

Perhaps a caterpillar is observed in the yard gluttonly munching on the wife's prized petunias. Grab it, give it a few leaves to chew on, and put it in a jar having a ventilated cover, With your camera, make closeups of it munching the leaves If you are lucky, you may see it stretch out on the bottom of the container and convulsively creep out of its old skin; then, still abundantly fed with leaves and given a sprinkling of water, you may see it develop to the stage where it begins to spin a cocoon, finally cast off its old caterpillar integument and transform into a hard-case pupae from which a moth or a magnificent butterfly will ultimately emerge.

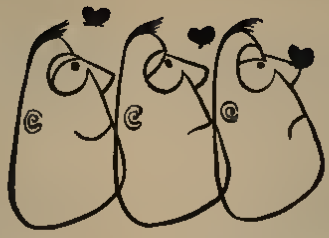
The key to your garden gate unlocks a world that you should most certainly explore What special equipment do you need? The answer lies with the individual To photograph ordinary phases of insect life, particularly the larger forms, requires nothing more than a steady tripod, a camera equipped with a telephoto lens, some photoflood lamps, and a creative mind. Remember that most insects are delicate things to handle and only act normally in familiar surroundings Don't put a nice butterfly larvae in a butter dish just because its name implies this affectation. If such is the only dish available, then put some earth in it: give your subject a few pieces of plant material you found it feeding upon, make it feel at home and you will have its cooperation, to some extent at least Remember that insects inhabited this earth long before we did (but don't ask me what bed bugs and mosquitoes fed on at that time) and they are not comfortable in cocktail glasses and ash trays. So if you undertake to explore their life cycles indoors in your home, remember to bring a little of the great outdoors in with them

In producing some of the most complete life history studies of insects ever to be filmed in color, I have learned the importance of providing adequate but suitable feed, a constant supply of water, and the maintenance of sanitary conditions to meet the requirements of the particular insect.

Perhaps in passing a few tips on the techniques and gadgets that have resulted from this fascinating study would be of value to other cinebugs

Beginning with the egg, since we know that this came before the caterpillar, let us assume that the relative size of our specimen is too minute for macro photographic treatment via the usual extension tube method, so we have to resort to the use of the microscope Armed with just a plain monocular low-power microscope and the necessary camera and floodlights, what is the most satisfactory technique to apply? Shall we just mount the camera on a suitable firm support and let our standard one-inch lens (wide open and set at infinity) rest on the eye piece of the microstope, or should we remove the camera lens and just allow the lens receptacle to be seated on the microscope?

I prefer the former method by choice, but to obviate the risk of out-of-focus frames, the following technique will insure the cameraman of uniform, sharply-focused objects every time the camera is set up. The actual problem confronted in cinematography is that of registering an image on the film with sufficient sharp focus to show strong definition and clarity of the subject matter. Many thoroughly commendable commercial apparatuses



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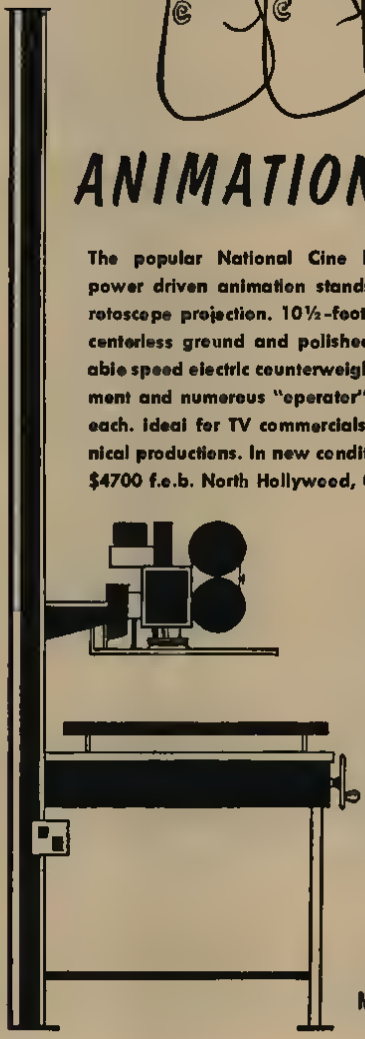

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are available for connecting camera to microscope, but all of them are expensive and most of them beyond the reach of the amateur. However, a very serviceable and practical adapter can be made for any camera and can in turn be designed to fit any microscope eye optic for a very small outlay of cash—certainly not over one dollar.

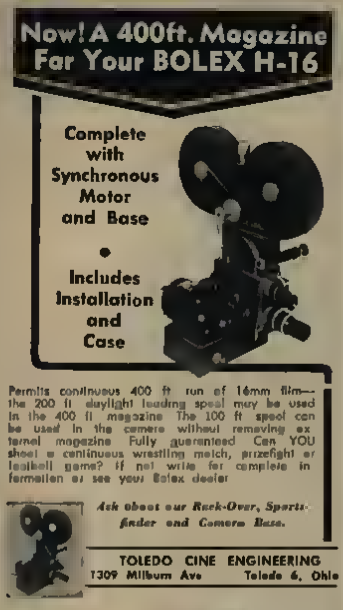
It is first necessary to determine by the use of a micrometer the distance from the front of the lens mount (face of camera) to the actual film plane, which, of course, must be done with the camera shutter open. When this dimension has been accurately determined, an adapter should be made of hollow tubing or reamed out of brass to this precise size; the inside should be given a coat of flat black paint, and the outside diameter cut to fit the standard microscope eyepiece or the one intended for use. The adapter should then be placed on the eyepiece of the microscope and a thin piece of ground glass laid on top. The object to be photographed should be carefully focused, the glass and the adapter removed, and the camera, minus lens, carefully placed on the microscope. This will insure accurate focus of the object at the film plane, which is exactly what is required.

Focusing on the subject naturally requires some time, and standins for insects being unknown, your subject will cook to a crisp if left long under the glow of photoflood lamps So, to prevent this a few precautionary steps must he taken.

Take two (one if only a single photoflood is used) glass containers, such as widely used Florence Flasks, and fill with water. Stir water slowly to remove any air bubbles. Place the flasks in front of the lights in such a manner that the maximum concentrated beam falls directly on the egg. The water will, of course, absorb the heat and the egg will not dessicate. This same treatment can be used when photographing other delicate stages of insect development.

There are many ways of determining when a caterpillar is going to molt. But the most reliable method for the cameraman to follow is that of observing when it quits feeding, lies almost motionless on the bottom of the receptable, and when touched is slow to respond. That is the time to get out the 3- or 4 inch telephoto and make preparation to shoot.

Suppose you have a pupae, one of those nice, brown jug handle specimens characteristic of the bornworms, can you tell when it is nearing the time for the adult moth to peek out at you? Well, give it a gentle squeeze and if it shows active response, get ready with your camera for these peculiar critters are only sensitive to touch immediately after pupation and again before the moth emerges. If it feels "watery" to the touch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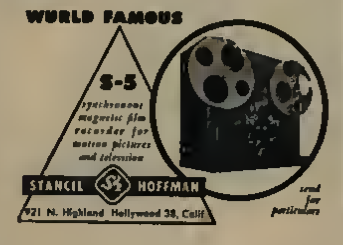

and wiggles, it is quite probable that during the night, when you have become too tired to watch it, a beautiful moth will appear and most likely sit perched on your lens unconcernedly pumping its wings and playfully blowing bubbles from the tip of its long proboscis.

Remember, when shooting insects indoors under photofloods, you must protect them from excessive heat, particularly during metamorphosis, for when you see that contraction and constriction of the dark colored vein on the back of the larvae, you are looking at its heart, which is nothing more than a pulsating tissue. However spellbound you become watching the many amazing transformations, remember to keep your finger actively engaged on the trigger of the camera

Interest in insect life has forged ahead of most other branches of natural history. This is no doubt due to the fact that insects are virtually a part of our social existence and are not necessarily inhabitants of the jungle or remote places of the world. Within the average backyard flower bed dwells an aggregation, any one of which would make a noteworthy record on film Every hedge or shrub has its own particular denizens, the commonest of which may be either fearsome, like the mantid, or marvelously beautiful, like the butterflies, when viewed on the screen.

The words of Raymond L. Ditmars ring so true: With flowing pen he wrote these words, "From the time the buds burst in spring until the winter's frost, no matter what part of the country, there is always the eternal struggle for existence going on; the trail of the sluggard, the effort of the thrifty and the magic of the conjurer of transformation And even with the close of day, darkness ushers in another phase of life, for the songs of the nocturnal insects show other legions have awakened, and the light from porch or lanai will form a magnet for the myriad forms that fly only at night." This suggests the innumerable possibilities that prevail in your garden for shooting an "Oscar" winning film, featuring any one of a million "stars" that are to be found among the legion of marvels living there.

NEWSFILM TAILORED FOR TELEVISION

(Continued from Page 409)

Amarillo man was back on the phone reporting the footage he had and what additional footage he might be able to get.

The traffic desk, in the meantime, had gone to work on shipping problems out of Amarillo, and had specific instructions worked out on what air flights to make, what the film transfer points would be, and at what time the film would arrive in New York. Instructions were relayed to Amarillo.

Calls went to Denver and Lincoln with similar information. The Denver problem was somewhat complicated because the greatest havoc wrought by the storm in Colorado occurred in the southeastern part of the state, a considerable distance from Denver. The Denver correspondent was instructed to charter a plane, get his story, and get the film to Denver in time to catch a non-stop flight for Chicago. The film was processed, scripted, narrated and syndicated from Chicago.

Coverage on this overall story was of high quality. It was imaginative, creative, colorful, pictorial and faithful to the facts. This is the aim of all Newsfilm coverage.

Jean M. F. Dubois of Denver is a typical Newsfilm camera correspondent. In addition to the dust storm story, he has covered scores of other features for the news film service, notably the Sun Eclipse Expedition, and the summer White House (with reactions of President Eisenhower's neighbors). Dubois was an explorer and lecturer before switching his interests to films and cameras. In Hollywood, he acted in several Von Stroheim pictures before starting out on his own as a newsreel cameraman on a free lance basis. In 1946, he was one of three cameramen (Roy Edwards and Charles Herbert, A.S.C., were the others) who filmed the Universal short: "Flight of the Wild Stallions" in the Red Desert of Wyoming. The film was nominated for an Academy award. In 1951, he won a citation from the U. S. Marines for a newsreel depicting the flying Marines. He is a member of cinematographers local 659, Hollywood, and a charter member of the Newspaper Press Photographers Association His 16mm equipment consists of 3 Filmos, 1 Cine Special, and 1 Auricon 200-Pro. The lenses vary from ½ to 6 inches and include Ektars and Taylor-Hobson-Cookes. His 35mm gear includes 4 Eyemos, with Bausch and Lomb and Taylor-Hobson-Cooke lenses varying from 1 to 10 inches.

In all television Newsfilm, not only is the visual or pictorial story presented with the most possible clarity and dramatic impact, but greater use of sound is employed than in any other medium. The natural sounds of people and events are featured wherever possible—if they add to the feeling of actuality. Television is ideal for handling this dimension.

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shot sound-on-film. Sound is used whenever it adds an understanding to the story being covered. Conversely, sound is not used just for the sake of employing it. Newsfilm avoids set speeches unless they have a definite news interest.

One technique developed by Newsfilm through its camera correspondents is to have them describe the event being photographed to have them talk as a cameraman pans a scene or otherwise illustrates their observations. This system welds the work of Newsfilm correspondents and cameramen . . . in developing an interpretation of significant news.

With its broad coverage, and its continuing efforts to make this coverage better, Newsfilm often has the first film story on the air. Often, it's an exclusive story. From its beginning, Newsfilm has scored one beat after another.

Newsfilm was the only television service to win two prizes in the 11th Annual (1954) "Best Picture of the Year" competition jointly sponsored by the National Press Photographers Association and the Encyclopaedia Britannica.

But it takes more than awards or the legacy of CBS News to keep Newsfilm's deliveries flowing to its subscribing stations, day in and day out. It takes camera correspondents who can perform effectively as reporters, who can dig out details, sift them for the newsworthy

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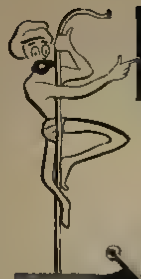

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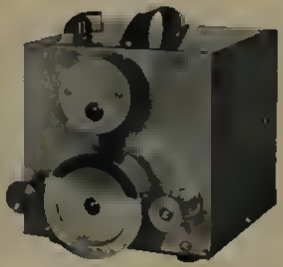

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facts, and then work these facts into a single story with a fast, sure hand—and always against deadlines practically around the clock.

It takes an editorial staff hired for efficiency, imagination, skill and judgment—and for knowledge of film and television station operations. This staff is set up as an entirely separate unit from the editorial staff which services network news programs. It features editor-writer teams, with film editors and writers working side-by-side.

When one of these teams is assigned the footage of a Newsfilm story, along with every scrap of related data Newsfilm correspondents and all major news services can provide, it works with the precise and perfectly synchronized movement of a fine watch.

Frame by frame, an editor-writer team accepts or rejects pictures, repairs them as necessary and integrates them into a single sequence to tell a story as clearly and dramatically as possible.

Often the team supplements incoming film with footage on background material to give viewers the complete news picture. Whether fifteen feet or several hundred are needed, they are within quick and easy reach—among more than 4,000,000 feet which are cross-indexed in thousands of categories in Newsfilm's library.

Airplane, for example, carries 28 subtitles, many of which have in turn more than a score of references of their own. This invaluable library adds another dimension to Newsfilm stories every day—gives them the interest and illumination that very often expands a relatively unimportant item into a headline story.

Finally, an editor-writer team must mesh pictures with words. The writer prepares commentary in carefully timed and cued scripts for reading by a station's own local news personality. Scripts can be localized—or adapted for late developments from news wires—up to the last-minute before airtime.

When the teams have produced their finished stories—when they are wrapped up and ready to go—Newsfilm's daily footage has been reduced from some 5,000 feet to less than 500. Screening time has been cut from more than two hours to a compact, fast-paced 12 minutes.

Why 12 minutes? In planning its service, Newsfilm went to television stations and asked them what they wanted in a syndicated news service. The first specification was more quality and more but shorter stories—ideally, the 12 most important minutes of the day.

And the stations listed a second specification: no warmed-over network news programs. We want coverage, the stations said, that fits our own set of needs . . . that is adaptable to a great number and variety of programs . . . and that includes material of interest to all segments of our audience. It was to these specifications that Newsfilm was fashioned.

ARTISTIC HONESTY

(Continued from Page 403)

"It is unlikely that a cinematographer would be able to correctly visualize the arrangement and lighting of a room in a mansion if all of his life had been spent in hotels or rooming houses. It would be like a blind man trying to describe an object he had never seen. To draw, perhaps, a better comparison, how close could a person whose only experience of home life had been in the squalor of slums come to portraying convincingly a scene laid in the home of a cultured millionaire?

"This I believe, is a factor that is too often overlooked in all phases of motion picture production. Our aim, when producing a picture, is to present a story in scenes which give it at least an illusion of actuality. This illusion can only be attained when every phase of production—writing, acting, direction, settings, and cinematography—strikes a keynote of sincerity based on experience. In other words, when all of the artists concerned are artistically honest—with themselves and with their work."

Folsey believes, as do nearly all directors of photography in Hollywood, that a vitally important and often neglected factor necessary to bringing about honesty and authenticity in cinematography is more closely coordinated pre-production preparation in which the director of photography participates. More and more, production experience is proving that the picture benefits immeasurably where the director of photography is allowed ample time for thorough preparation—a chance to study the entire script, to consult with the director and the art director, and to discuss makeup problems as they relate to the photography of the picture.

When time and circumstances permit, it is advisable to allow the cameraman time to make a few photographic tests of the star and sometimes of the key sets, both interiors and location.

During actual production the director of photography with a penchant for strict authenticity will make it a point to pay as much attention to the treatment of the set itself as to that of the players. Essentially, of course, the set is primarily a backdrop against which the players enact the story; but it should nevertheless be a wholly convincing background. Therefore it should be treated with equal care. Actually, the set serves two purposes: it must be a convincing, believable background for the action, and it

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must form a vital part of the composition. Thus, it should be lit not only with an eye to enhancing the effect of actuality, but to enhance the pictorial value.

Needless to say, the extent to which a cinematographer on a feature production can carry out his ideas depends greatly upon the director with whom he works. Some directors become engrossed in the action and dialogue, and more or less accept the cinematographer as a matter of course. Others, while not directly interested in the purely pictorial phases of the production, nevertheless realize that the camerawork is important, and work closely with the cinematographer for the mechanical perfection such cooperation makes possible.

The advent of wide screen processes has had the effect today of directing a great deal more of the producer's and director's attention toward the cinematographer and the photography than ever before, because all these new processes begin with the photography, are based on revolutionary camera techniques. The cinematographer now commands greater respect on the set and indeed in the planning of the better feature productions today. More than ever before, he now has opportunity to imbue his lighting and camera work with the artistic honesty that makes the photography a genuine contribution to the production.

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ORIGIN OF HANDBOOK

(Continued from Page 400)

set in type. In addition, the Handbook contains brief articles or descriptions of latest cameras, cinematographic processes, films, etc. As new techniques have been developed in the industry, data pertinent to cinematography has been organized and added to the handbook in subsequent printings. Some idea of the diligence in which the book has been improved and kept up to date may be seen from the fact that the original Handbook contained 20 pages. The latest edition is a fat 350 pages.

Its contents are of value to professional and amateur cinematographers alike. In addition to the data sheets which are reproduced here, the book contains pages dealing with such vital information as motion picture camera descriptions, filter factors and filter descriptions, lens size conversion tables, depth of field charts for most of the lenses used today, angle of view of various lenses, hyperfocal charts, process background projection charts, camera speed conversion charts, shutter compensator chart, diaphragm compensator charts, exposure guide for various shutter openings at various camera speeds, frame and footage totalizer tables, ultra speed chart, camera set-up charts that show what lens to use for a given set-up . . . and many, many others too numerous to mention here.

In addition to these data pages, the new 8th edition contains brief articles dealing with such subjects as Color Temperature, the Kelvin Scale, Color Temperature Control, Ansco Color Film, Technicolor, Commercial Kodachrome Film, Magnetic Sound Recording, Infrared Photography, Zoom Lenses, "T" Stops, The Care of Lenses, Rear Projection Process, Care and Handling of Film in the Tropics and the Arctic, Underwater Cinematography, Latensification, Makeup, Set Lighting Equipment, Kinescope Recording, and Cinerama.

The expansion of motion picture production in various foreign countries has brought about the need for foreign versions of the American Cinematographer Handbook. Rose recently completed arrangements with a firm in Barcelona, Spain — Ediciones Omega, S.A. — to translate and publish the book in Spanish. Negotiations are presently underway for publication of translations in other languages.

One of the most memorable incidents in connection with the Handbook perhaps is the discovery, a few years ago, of an unauthorized Japanese version of the book. During the recent war with Japan, an American army officer searching dead Japanese soldiers for identification, rolled over one corpse and saw protruding from his breast pocket a small, thick, green-covered book. This was taken to headquarters along with other personal effects. Later, translators told the officer the book contained data concerning motion picture photography. In the natural course of events the book found its way to the Army's motion picture section where comparison showed it was a translation in Japanese of the American Cinematographer Handbook.

Sometime later the officer visited 20th Century-Fox's veteran director of photography Arthur C. Miller—now retired and presently the President of the American Society of Cinematographers—and gave him the book as a souvenir. Miller ultimately turned it over to Mr. Rose, who has placed it among his collection of eight original editions of the Handbook.

While it contains all the essential data sheets, tables and brief reports of the preceding editions, each new edition of the Handbook, features a dozen or more new pages giving data on new processes, procedures, and motion picture films that have been developed and put into general use since the first printing of the previous edition.

The latest 1955 printing of the Handbook has been completed and is in course of distribution. During the war, the Armed Services became the largest single purchaser of the book—a fact that has greatly stimulated use of the book in foreign countries. Just as brother cameramen displayed enthusiasm when Jack Rose showed his first crude notebook containing pages of handwritten facts and figures, foreign cameramen evinced no less interest whenever they encountered an American photographic corpsman with a copy of the Handbook. Rose is still receiving orders from foreign lands directly traceable to these war-time discoveries.

VIEWFINDER

(Continued from Page 415)

Bolex, comprises an elongated U-shaped bracket 27, which holds the finder to the camera. It is so designed that the camera door may be removed without need for first removing the viewfinder.

A manually rotatable shaft 36 is journaled through the bracket ends; a knurled knob 37 is secured at the end extending toward back of camera. The finder tube is connected to the mounting block in such a manner that it will swivel laterally toward or away from side of the camera. There is a scale plate and pointer at the rear of the tube which indicates where to set the tube mounting block for camera lenses of different focal lengths.

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The camera lenses 14, 15 and 16 are fitted with concentric gears 56, 57, and 58 respectively, for rotating them to adjust the focus. The front end of the shaft 36 is provided with gears 59, 60, and 61 which mesh with the aforementioned lens gears, whenever one of them is rotated to taking position. The gears 59, 60, and 61 have different numbers of gear teeth, corresponding to the variations in the focusing adjustments of the gear assemblies 14, 15, and 16.

A spiral-shaped cam gear 62 is mounted on the viewfinder lens assembly tube 54, and a gear 63 is mounted on the shaft 36 and meshes with the cam gear 62. As the finder lens assembly is of indeterminate focal length, and the gears 62 and 63 have relative numbers of gear teeth, the viewfinding lens is accurately focused in coordination with any one of the camera lenses upon rotation of the lens focusing shaft 36.

An elongated tension spring 64 is connected to the upper and lower edges of the finder bracket and resiliently pulls the forward end of the viewfinder and the corresponding end of shaft 36 toward the bight of the bracket, and thus maintains the gear 63 in mesh with gear 62.

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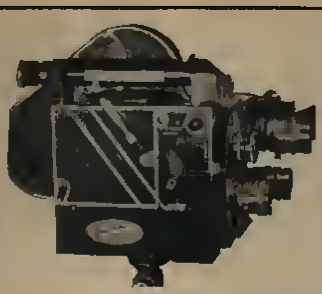

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ward or away from the camera lens, depending upon direction of rotation of the shaft. The arrangement is such that when the focus of the camera lens is shortened, the finder lens will move toward the camera lens, and the axis of the finder lens will then be disposed at a slight angle to the axis of the camera lens and will intersect the axis of the picture lens at the focal plane of the latter. As the distance of the camera lens is increased, the finder lens will be moved away from the camera lens proportionately and will be maintained substantially in the focal plane of the picture lens. The finder thus always views exactly the same subject matter that the camera lens views and the axes of the two lenses do not become substantially parallel unless the picture is focused at infinity.

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SHOOTING SCRIPT

(Continued from Page 416)

As usual, the first shot to come to my mind is a long shot, but this time it isn't one to open the film. As I thought of Junior's situation, I "saw" a final, rather Chaplinesque, shot of him trudging dejectedly away from the camera, his hands deep in his pockets. Besides being pictorially agreeable, this shot should give the sequence an appropriate, slightly melancholy, conclusion.

The opening scene seems obvious almost at once — another long shot of Junior in the field throwing the ball as high as he can and trying to catch it. A few unrelated but effective shots also suggest themselves. The ball dropping from a height towards the camera is a fairly obvious one; a closeup of the boy catching the ball is another. And the long grass offers scope for a shot of the boy ducking out of sight to search for the ball and reappearing in a totally unexpected position.

All these shots, then, are roughly sketched. Now comes the deliberate visualizing of the whole sequence in its correct order, incorporating these scenes. At this stage it is quite sufficient to scribble a thumbnail sketch of each scene with an arrow or a word or two to indicate the action.

The opening shot has already been noted. Junior throws the ball and catches it, throws it again (cut to C.U. of his face as he watches the ball rise) and misses it, (continuation of original L.S.). He picks it up (M.S.), takes a firm grip (C.U.), brings back his arm and flings the ball up again with all his force (M.S.). This time we see the ball rise (L.S.) and watch Junior run forward and stumble (L.S.), and finally fall flat (M.S.). The ball misses him by inches (C.U.).

He gets up and throws again (M.S.). The ball descends straight towards the camera (L.S.), and Junior catches it successfully (C.U.). He kicks it (M.S.) and gazes after it blankly (C.U.). He runs toward the spot where he lost sight of the ball (L.S.), and begins parting the tall grass around him (C.U.). He stoops and disappears in the grass, and after a brief pause reappears in a different spot (L.S.). His feet kick at the grass (C.U.), and his face registers impatience (C.U.). He gazes around again at the sea of tall waving grass (L.S.), but his expression shows that he still cannot see the ball (C.U.). He turns and begins to walk away, kicking at the grass as he goes (M.S.). Completely dejected, he disappears into the distance (L.S.).

By now there are twenty-four sketches, which means that the sequence will run about two minutes or so. (I find my own average shot length in silent production is just over five seconds.) The major part of the work is over. The rest is a matter of detail.

My method of preparing the shooting script from the sketches is quite straightforward. I rule the pages of a notebook into columns for shot numbers, decriptions of action, camera distances (B.C.U., M.S., etc.), camera movements, effects (fades, dissolves, etc.), continuity notes, and editing notes (including approximate running time). All these, together with a more detailed sketch, are entered for each shot. I leave sufficient space to fill in exposure and location notes during shooting. The only other requirement is a list of the shot numbers in the most convenient shooting order.

A script containing as much information as this proves invaluable throughout every stage of filming and editing. Providing it is always treated as a detailed guide rather than a complete blueprint, it is as flexible as any cuff, and far more useful.

Moreover, this preparatory work is the most creative and thus the most exciting part of film making. The actual shooting sometimes seems a mere chore by comparison, for the final film already seems as real to the producer as if it were completed. END

AFTER LAST SHOT IS MADE

(Continued from Page 399)

is the sound effects editing this department also handles. Effects editing starts with a series of notes taken when the dupe is run by Rossi and the director and producer. Each of the effects editors is then given one or two reels for which he will build the effects tracks based on notes made during the screening. The tracks are cut and new effects cut and fitted and synced. As many as sixteen seperate tracks may be built for a single reel. The effects that are necessary are usually available to the editors in the studio's sound library where millions of feet of track is stored in thousands of categories. However, if the particular effect an editor may require is not in the library, then Rossi and his crew have to create it.

As an example of the lengths to which they go for realism in sound effects, to get the right sounds for the auto racing action in "The Racers" Rossi took a crew to a local sports car race where they recorded the cars roaring past. They even strapped a portable tape recorder to he seat of one of the cars where it picked up all of the sounds that were typical to the interior of a race car as it sped around the track.

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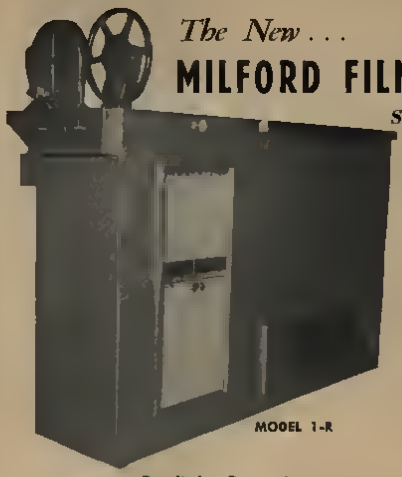

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editorial department has been hard at it on technical work. Laps, fades and other optical effects are created by Jimmy Gordon's optical printing department. Main titles are added and, when necessary, inserts by Bernie Cooper; and the Kellogg Department has the while been adding its strange and wonderful processes wherever needed.

As each of the post-production departments finishes its work, it is sent to the re-recording department. There, under the careful hand of Warren Delaplain, what is sort of a "grand finale" of post-production effort take place. The dozens of tracks that have been created for each reel — a skillfully integrated melange of dubbing, sound effects and music — are gathered here. The totals for any given reel may run as high as 32 separate tracks. To combine that many tracks for one reel is not only unwieldly but is more than can be recorded at one time. Therefore, the collection of tracks are reduced to what the department calls "combines" or "generations." Usually, these combine the "knowns" or constant elements that are not likely to be changed. This done, the tracks are ready to be re-recorded. This re-recording step is one of the most impressive and wonderful processes we have ever seen. On the huge platform in Stage 2, the mixers sit at their panels alongside the picture's editor, the director, pro-

Byron Installing Color Film Processor

Byron, Inc., 16mm motion picture studios and laboratory have scored another "first" in the United States by installing the famed precision "Arri" color developing process in its Washington, D.C. plant. Installation is expected to take several weeks, with complete operation beginning in early fall.

With the "Arri" machine, produced by Arnold Richter of Munich, Germany, two steps will be eliminated in 16mm color film processing, making it unnecessary to run each print through the printer three times. The German process,

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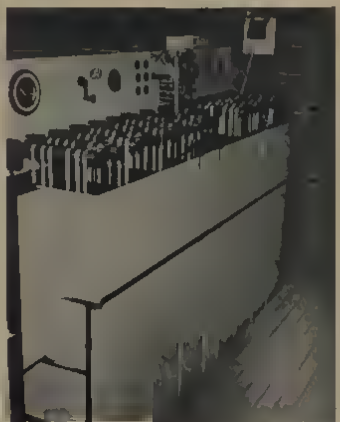
exclusive with Byron in this country, produces an intermediate dupe negative with all "A" and "B" effects. The duplicate negative is run through the printer just once to produce a quality release color print.

According to Byron, the "Arri" process means sharply reduced costs for raw stock, printing and processing, resulting in quality color prints at close to standard black-and white print prices.

The Byron organization made an exhaustive 5-year study of equipment of this type from manufacturers all over the world before selecting the "Arri" machine. This particular Arnold-Richter equipment, according to Byron, is specially designed to fit their requirements. "It is the perfect answer to our quest for a system of controlling color from the duplicate stage to the finished print stage," a company spokesman said.

The German firm sent its president, Dr. Robert Richter, and two of its top engineers to Washington to consult on assembly of the machine. German laboratories have been using the positive-negative process for some 20 years, and the machine at Byron, Inc. is the collective result of those long years of research and experience.

Installation of the equipment is a painstaking process in itself. In addition to the machine, an acid-resisting floor, special heaters for hot water, a chilling plant, air conditioning controls, mixing equipment, and chemical analysis equipment are being installed. Byron expects to offer this new service to the film industry by early fall.



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ducer, music director and the sound effects and music editors. It is in this process that *everything* audible is finished. Dramatic reality is given life, balance between dialogue and music is established and even voice quality is changed when deemed necessary in order to be more pleasant, or better suited to a particular characterization.

The amount of complex equipment that goes into this process is staggering. Great batteries of re-recording machines and recorders roll in a room adjacent to the stage. On the huge console panel the sound mixers use a myriad of controls, from a wonderful device called a graphic equalizer that makes balance easily *visible* as well as audible, to the three controls that follow the stereophonic voices, and the controls for the fourth or surround track. No detail is overlooked or passed over; perfection is the only standard these men will settle for.

The final recordings are made on the three stereophonic tracks and then the whole is run again and it is decided what is to go on the fourth track. This done, the final four-track recordings are made.

When both the picture and the four-track sound are finished, the next thing that is done is to manufacture a "protection master" (the negative has been cut to match the positive and protective master made by the optical department). This is kept at the studio and the picture negative sent to Deluxe Lab in New York where an answer print is made and immediately shipped to the studio. Here it is striped for magnetic sound by Henry Goldfarb and his crew at the studio's Western Avenue Lab and sound printed. This finished print is run for Mr Zanuck, the producer and the director. Their final OK sets the New York Lab in motion making release prints, and within two weeks the picture is in the theatres.

'NOT AS A STRANGER'

(Continued from Page 397)

matographer Planer elected to shoot the entire sequence in one long take, moving the camera almost constantly to achieve a variety of angles. The sequence begins with an establishing full shot of the operating room; then the camera moves rapidly in for a close-up of a hand preparing a hypodermic, pulls back again to a medium shot and pans with a nurse as she moves away, pushes in again to an extreme closeup of an oscillograph registering the heartbeat, etc. This highly mobile camera treatment was made possible through the use of a small, highly maneuverable camera platform known as a "crab dolly" because of the fact that its wheels are capable of making sharp turns in any direction.

Preparation for shooting this intricate sequence was painstaking indeed. The camera crew observed many operations in advance and Planer charted the many camera moves to coincide with the highly specialized action. Meanwhile, Olivia de Havilland and Robert Mitchum, stars of the film, were busily observing several major operations at Cedars of Lebanon Hospital in order to perfect the technique of the doctor and nurse whom they portray in the film.

Since the sequence includes a striking closeup of an exposed beating human heart, it was necessary to postpone shooting until a patient could be found who needed such an operation and who would sign the necessary legal clearances.

Since it was impossible to disturb normal hospital routine during hours when the operating room was needed for surgery, rehearsals for this sequence were held at night with a crack surgical team going through the motions and the studio crew co-ordinating camera movements with the action of the surgical personnel. Except for the leading players, the "actors" in this sequence are actual doctors, nurses and anesthetists from local hospitals. A staff of technical advisors stood by at all times to insure the authenticity of every detail.

Frank Planer describes the tension attendant to the filming of this sequence: "None of the crew had had any 'basic training' in the filming of such subject matter. Also, we were keenly aware of the fact that a human life was involved on that operating table, that there could be no retakes and that we had to get everything right the first time. Our equipment had to be sterilized and the crew had to dress in surgical gowns and masks."

On the screen the sequence results in what might almost be called a modern ballet of camera and action as the white-robed figures move quietly and surely through their practiced paces. The camera is an integral part of the total pattern—never obtrusive, always where it should be on the split second to point up details of the action. The smooth blending of these elements builds to a climax of powerful dramatic force.

Other sequences in the film also reflect a carefully slanted photographic approach. The lighting is richly graphic, leaning toward low key to enhance the dramatic mood. Characters are allowed to walk into shadow or silhouette at times and no concessions are made toward glamour—although it must be said that Miss de Havilland looks almost too pretty to be completely convincing.

(Continued on Page 435)

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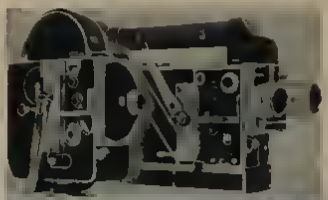
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ALLIED ARTISTS

● HARRY NEUMANN, "Dperation Uranium," with Leo Gorcey, Hntz Hall, Mary Beth Hughes. Edward Bernds, director

● ELLSWOOTH FOEDEOICKS, "Bobby Ware Is Missing," with Neville Brand, Arthur Franz Thomas Carr, director

COLUMRIA

● JAMES WONG HOWE, "Picnic," (Technicolor, CinemaScope) with William Holden, Rosalind Russell, Kim Novak Josh Logan, director.

● HENRY FREULICH, "Inside Detroit," with Pat D'Brien, Dennis D'Keefe, Mark Damon. Fred F. Sears, director.

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• JOSEPH RUTTENBERG, "Kismet.", (Eastman Color, CinemaScope), with Howard Keel, Ann Blythe, Dolores Gray, Vincente Minnalli, director

● ROBERT SUATEES, "Tribute to a Bad Man," (Eastman Color, CinamaScope) with Spencer Tracy, Irene Papas, Robert Francis, Stephen McNally. Robert Wise, director.

• HAROLD LIPSTEIN, "Forever, Darling," (Eastman Color. Wide screen) with Lucille Ball, Desi Arnaz, James Mason, Louis Calhern Alexander Hall, director

● ARTHUR AILING, "I'll Cry Tomorrow," (Wide-screen) with Susan Hayward Richard Conte, Eddie Albert. Daniel Mann, director.

• PAUL VOGEL, 'The Tender Trap,' (Eastman Color CinemaScope) with Frank Sinatra, Debbie Reynolds, David Wayne, Celeste Holm, Charles Walters, director.

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● LOYAL GRIGGS, WALLACE KELLEY, PEVEOELL MARLEY, "The Ten Commandments," (Vista Vision, Technicolor), with Charlton Heston, Anne Baxter, Yul Brynner, et al Cecil B. De Mille, director.

● LIONEL LINDON "Too Late, My Love," (VistaVision) with Carol Dhmart, Tom Tryon, Jody Lawrence. Michael Curtiz, director.

● ROBERT BURKS, "The Man Who Knew Too Much," (VistaVision, Technicolor), with James Stewart, Doris Day Alfred Hitchcock, director

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● RAY RENNAHAN, "Texas Lady," (Technicolor, Superscope), with Claudette Colbert, Barry Sullivan Tim Whelan, director.

TWENTIETH CENTURY-FOX

● LEO TOVER, "The Tall Man," (CinemaScope, Color) with Clark Gable, Jane Russell, Robert Ryan, Cameron Mitchell, Raoul Walsh, director

● MILTON KRASNER, "The Girl In The Red Velvet Swing," (CinemaScope, Color) with Ray Milland, Joan Collins, Farley Granger, Richard Fleischer, director.

● JOSEPH MacDONALD, "The View From Pompey's Head," (CinemaScape, Color), with Richard Egan, Dana Wynter, Cameron Mitchell Philip Dunne, director.

UNIVERSAL-INTERNATIONAL

● WILLIAM DANIELS, TOM TUTWILER, "Away All Boats," (Technicolor, VistaVision) with Jeff Chandler, George Nader, Julie Adams. Joseph Pevney, director

● MAURY GEOTSMAN, "World In My Corner," with Audie Murphy, Barbara Rush, Jeff Morrow. Jesse Hibbs, director

● GEORGE ROBINSON, "Tarantula," with John Agar, Mara Corday, Leo G Carroll, Nester Paiva. Jack Arnold, director.

● ELLIS CARTER, "The Girl In The Cage," with William Campbell, Kathleen Case, Keenan Wynne, Mamie Van Doren. Abner Biberman, director

● IRVING GLASSBERG, "Backlash," (Technicolor) with Richard Widmark, Donna Reed. Rudy Mate, director

● GEORGE ROBINSON, "The Square Jungle," with Tony Curtis, Pat Crowley, Ernest Borgoine, Paul Kelly. Jerry Hopper, director.

WARNER BROTHERS

● RUSSELL METTY, "Miracle In The Rain," with Jane Wyman, Van Johnson, Paul Piccrni, Barbara Nichols. Rudy Mate, director.

● WILLIAM MELLOR, "Giant," (Warnercolor) with Elizabeth Taylor, Rock Hudson, James Dean, Jane Withers. George Stevens, director

● SAM LEAVITT, "The Court-Martial of Billy Mitchell," (Warnercolor, CinemaScope), with Gary Cooper, Ralph Bellamy, Fred Clark, Herbert Heyes. Otto Preminger, director

INDEPENDENT

● HARRY STRADLING, "Guys and Dolls," Samuel Goldwyn Prodn, (Technicolor, Cinema Scope) with Marlon Brando, Jean Simmons, Frank Sinatra, Vivian Blaine, et al Jos L. Mankiewicz, director.

● SAM LEAVITT, "Battle Hell," Chester Prodns., (Superscope) with Wendell Corey, Mickey Rooney, Don Taylor, Dianna Darrin Lewis R Foster, director.

● WILFRID CLINE, "The Indian Fighter," Bryna Prod, (Color, CinemaScope) with Kirk Douglas, Walter Abel, Diana Douglas Andre de Toth, director.

● ERNEST LASZLO, "News is Made at Night," Friedlob Prod, with Dana Andrews, Ida Lupino, Rhonda Fleming, George Sanders, Thomas Mitchell, Howard Duff Fritz Lang, director.

● LUCIEN BALLARD, "A Kiss Before Dying," Crown Prod, (Eastman Color, CinemaScope), with Robert Wagner, Jeff Hunter, Virginia Leith Gerd Oswald, director

● LESTER WHITE, "Top Gun," Fame Pics, with Sterling Hayden, Karen Booth, William Bishop, Ray Nazarro, director.

● WINTON HOCH, AL GILKS, "The Searchers," C. V. Whitney Pics, (Color, VistaVision), with John Wayne, Jeff Hunter, Vera Miles. Ward Bond John Ford, director.

● FLOYD CROSBY, "Apache Woman," Golden State Prods, (Eastman Color, Superscope), with Lloyd Bridges, Joan Taylor, Lance Fuller Roger Corman, director.

TELEVISION

(The following directors of photography were active last month in photographing films for television in Hollywood, or were on contract to direct the photography of television films for the producers named.)

KENNETH PEACH, "Dr Hudson's Secret Journal," "Steve Donovan, Western Marshall.
FRED GATELY, "Cavalcade of America."
ROBERT de GRASSE, "Those Whiting Girls."
MACK STENGLER, "Ina Ray Hutton Show," "It's Fun To Reduce.'
HARRY WILD, "Bob Cummings Show'
GEORGE E CLEMENS, "Schlitz Playhouse of Stors."
HENRY SHARP, "Sheena, Queen of the Jungle."
ED FITZGERALD, "You Are There."
LATHRDP WDRTH "The Great Gilder sleeve.'
JACK MacKENZIE, "Passport to Danger"
LUCIEN ANDRIDT, "The Life of Riley."
JDE LaSHELLE, "My Friend Flicka."
KENNETH PEACH, "Gangbusters."
WALTER STRENGE, "This is the Life."
GILBERT WARRENTON, "Sergeant Preston of the Yukon."
CARL GUTHRIE, Warner Brothers' TV series.

'NOT AS A STRANGER'

(Continued from Page 433)

in the role of a dowdy nurse.

Time transitions are covered by several cut montages photographed and edited with sharp impact One of these includes an eye examination in which a small pen light is used as the main source The medium shot was photographed on Plus X, but the screen-filling close-up of the eye had to be shot on Tri-X so that the long lens racked out with an extension tube could be stopped to f/5 6 to insure sufficient depth of field to hold both the front and rear of the eye in sharp focus

One montage includes an interesting scene, supposedly shot through a flouroscope to show how an open safety pin is removed from a lung with a special instrument While this is a trick shot using an X-Ray plate, Planer says it would have been possible to shoot such a scene with the flouroscope However, it obviously would have created too great a risk for the "patient."

The night street scenes in the film, shot on the Universal-International back lot, were photographed in Tri-X Pan with the result that only 25% of the usual amount of light was required Planer used no low angles in the film but occasionally adopted high angles to psychlogically emphasize the bumble dedication of the main character to the science of medicine

"Not As A Stranger" was photographed in black-and-white rather than in color mainly because the producer-director felt that it would have more dramatic force in monochrome than in one of the richly tinted color processes. It was also feared that some of the surgical sequences might have been too much for the audience to take if shown in color.

Regarding his overall approach to filming "Not As A Stranger," Planer observes: "We wished to depart from the polished gloss of studio photography, but on the other hand we did not want to settle for the stark documentary quality of the newsreel. You might say that we were trying to get as natural a result as possible while still maintaining the quality the subject demanded. It was inspiring to work with Stanley Kramer, who made his debut as a director on this film. He is a man who likes to explore new roads. He is always ready to try any approach that is original or different He is after quality and cost is no object."

Frank Planer is considered one of the outstanding creative camera artists in Hollywood. His photography is always dramatic and carefully tailored to the subject without calling attention to himself. He has received four Academy Awards nominations for such films as: "Champion," "Cyrano de Bergerac," "Death of a Salesman," and "Roman Holiday." He has won three Golden Globe Awards and the Look Award for his camera work on "Decision Before Dawn." While not nominated for an award, his striking photography of Walt Disney's "Twenty Thousand Leagues Under the Sea" is considered within the industry to be one of the most outstanding jobs of color cinematography of the past year. Planer has just completed the CinemaScope filming of "The Left Hand of God" at Twentieth Century-Fox

MINIATURES

(Continued from Page 413)

to explode in the foreground of a scene showing a number of full size tanks moving up. A model train can be set up on a miniature railroad trestle juxtaposed to look like part of an intricate full-scale railroad network actually in existence It is necessary that the space and size relationship between the miniature and full-scale elements be correctly maintained. Checking such compositions with a through-the-lens type of viewfinder will be helpful in setting everything up in proper perspective.

The creation and photography of marine models is a specialty in itself—one which the Hollywood studio technicians have mastered, but which presents problems for the technician less experienced. We can pass on some technical tips from Hollywood with the hope that they may prove valuable. This is true primarily because it is difficult to get water to behave realistically on a small scale. It is practically impossible to create realistic waves small enough so that they won't dwarf the model vessel Therefore it is suggested that model ships be constructed on a scale of 3 inches to 1 foot.

Model ships should be floated in a good sized tank with the water anywhere from 18 inches to 3 feet deep. Painting the bottom of the tank blue will add to the illusion if filming is to be done in color Waves can be created by mechanical means or by paddles operated manually outside camera range. A small amount of liquid detergent added to the water will help produce a white cap effect, but too much will produce a bubbly foam that is unrealistic. The tank should be set up against real sky or a carefully painted backdrop. If the camera is mounted just slightly higher than water level the far side of the tank will appear as a horizon line. Slight lateral and vertical movement of

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the camera during shooting will heighten the illusion that the sequence was actually filmed at sea.

To illustrate a situation more typical of that which the commercial film producer might be called upon to shoot, let us select a representative miniature sequence and follow it through from conception to completion. Let's suppose that the situation which we wish to portray is that of the burning of an oil field studded with old wooden-type derricks. The first step is construction of the miniature derricks. Fortunately, there are several model kits of this item available on the market. Constructed of balsa wood and designed as exact miniature replicas of real oil derricks they range in size from 12 to 24 inches in height. A clever model builder can readily assemble the kits.

Greater realism can be achieved where the miniature oil field can be set up against a background of real wooden oil derricks, such as those that exist in the Signal Hill area of Long Beach, Calif. The larger model derricks should be placed in the foreground and the smaller ones in back to force the perspective. The illusion of distance may be further enhanced through use of a wide-angle lens.

A compressed air hose hooked to a reservoir of oil will produce the effect of a "gusher" in one of the large foreground derricks. The "gusher" can then be ignited by a concealed flame or spark and the derrick burned. Pools of oil concealed between the derricks can also be ignited to give the illusion of the fire spreading through the field. Miniature explosions can be touched off as required and a trough of oil constructed between the miniature field and the full-size derricks in the background set ablaze to produce the illusion that the entire field is in flames.

It is a good idea to shoot a sequence such as this with anywhere from 3 to 8 cameras, when available, in order to get an establishing shot and a variety of closer angle shots without burning up all the miniatures on a single take. An especially striking shot would be one in which a derrick is mounted on a sheet of glass with the camera under it angled up to show the flaming gusher shooting up through the "timbers" and igniting them. All such miniature action should be shot not under 64 frames per second and preferably at about 92 in order to make the flames and explosions seem large and ponderous on the screen.

To tie in shots of live actors fighting the fire so that these scenes will cut smoothly into the miniature action, certain connecting elements are necessary. In this case, fire itself can be the main connecting link. Large trenches dug and filled with oil then set afire—with the men spaced between these trenches with their fire-fighting equipment, appropriate action can be staged. A further connecting link can be achieved by shooting the live action with a blazing miniature derrick set up in the foreground, while some large timbers, supposedly fallen parts of the derrick, are set ablaze in the background. This action should be filmed with a wide-angle lens to insure sharpness both of the miniature and the background action. A speed of 24 frames per second is recommended. In editing, the live scenes should be intercut with the miniatures in such a way as to make the fire fighters appear right in the midst of the blazing field.

In Hollywood productions about prehistoric eras, primeval monsters are created by adding miniature horns, ruffs and "armor plate" to lizards, horned toads and other live reptiles. These creatures are then photographed set in miniature landscapes constructed to represent the terrain and foliage of the time. Again the action of the animals is photographed at accelerated speed in order to make their movements in keeping with the huge prehistoric beasts they are simulating.

Here are a few good general rules to remember in filming miniatures:

1. Miniatures involving movement should be shot at accelerated speeds, arrived at mainly through experiment.

2. Build models as authentic as possible and pay careful attention to detail, as any carelessness in construction is bound to show up glaringly in close shots.

3. Soft lighting will usually produce a more realistic effect than contrasty illumination.

4. A very light diffusion disc in front of the lens will soften a miniature just enough to make it seem large and far ther away.

5. Whenever possible, shoot exterior miniatures in natural outdoor light, preferably against the sky, distant trees or backgrounds authentic to the scene.

6. Any camera movement used in filming miniature sequences should be very slow and as smooth as possible.

7. A realistic illusion depends mainly upon proper perspective. Analyze each sequence in terms of where you would place the camera in relation to the full-size set, if it were available.

National Theatres, Inc., last month, introduced a new wide-screen photographic process, known as Cine Miracle, which makes it possible to blend photographically three strips of film so that they show on the screen as one continuous wide picture. Result is similar to Cinerama with the joining lines suppressed.

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WANTED: Standard Bell & Howell 35mm head converted to Mitchell type rackover or Bell & Howell Swing type Do not need accessories Also free head tripod or what have you Advise best price SAM ORLEANS 217 W Cumberland Ave Knoxville Tennessee

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WHAT'S NEW

(Continued from Page 386)

on film. Exclusive inking method permits individual hand operation of coding when necessary

Other features include a Veeder-Root counter, and an American Ink numbering machine. Price of either 16mm or 35mm model is $2,500, f o b. Hollywood.

★

Magnetic Film Splicer

Camera Equipment Company, 1600 Broadway, New York has introduced its new Clear Vision Magnetic Film Splicer Made of non-magnetic metals.

splicer makes a strong butt or lap splice, straight or diagonal, on 35mm, 17½mm or 16mm film. Splicer employs newly-developed Mylar tape as splicing agent.

★

Spot Meter

A new improved Spectra Brightness Spot Meter has been announced by Photo Research Corpn., 127 W Alameda Ave, Burbank, Calif. The meter measures the brightness of a small spot from a remote location This brightness is indicated directly on the instrument dial in footlamberts. Any operator will secure the same reading of a given light condition, since the unit is completely independent of the sensitivity of the user's eye.

BULLETIN BOARD

(Continued from Page 382)

Cord, ASC, and Thomas Tutwiler, ASC, behind the cameras Latter, who did the aerial photography on "Strategic Air Command" has been signed by Warners to direct the aerial photography of the "Lindbergh Story." Company leaves for New York and east coast locations middle of July.

★

Harold Stine, ASC, whose name as director of photography is familiar in the credit titles of such TV films as "Treasury Men In Action," and "Man Behind The Badge," was signed last month to photograph the "Medic" series.

★

A new division to handle all products and activities relating to the Todd-AO process, has been set up by the American Optical Company at Southbridge, Mass. William F. Peck, is general manager of the new division

★

Boris Kaufman, ASC, recent winner of the Academy Award for photography of "On The Waterfront," has completed photography of a color phantasy directed by Nicholas Webster. Production was shot in 35mm for the On Film Company, New Jersey.

OLD TIME MOVIES

(Continued from Page 392)

than now prevail, Niver has to compensate for that, too, in order to project the pictures through modern machines In doing so, he has somehow eliminated the flicker that characterized the early silents, and at the same time improved the picture quality. The pictures as he reproduces them are better than their makers ever imagined they could be

Niver is aware of the psychological hazard in eliminating the flicker, for flicker lends a persuasive nostalgic touch to old movies. But he is convinced that progress—even in pictures older than a half-century—is both inevitable and commendable. So out goes the flicker, and posterity may make what it wishes of the omission.

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"...and Bell & Howell equipment helped us do it!"

says **SID SOLOW**
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TECHNICIANS AT CONSOLIDATED rely on Bell & Howell equipment for the prize-winning performance that helped win all three of *Billboard's* top honors. "We use Bell & Howell J and D printers," states Mr. Solow, "and our labs turn out quality films fast—at reduced cost."

"AUTOMATIC SPLICERS by Bell & Howell give us quick splices with a weld as strong as the film itself," explains Ed Reichard, chief engineer at Consolidated Laboratories.

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